DOCUMENT RESUME

ED 469 285 EC 309 211

AUTHOR	Schumaker, Jean B.; Bulgren, Janis A.; Davis, Betsy; Grossen, Bonnie; Marquis, Janet; Deshler, Donald D.; Lenz, B. Keith
TITLE	The Educational Context and Outcomes for High School Students with Disabilities: General Education Classes and the Satisfaction of General Education Teachers. Research Report.
INSTITUTION	Kansas Univ., Lawrence. Inst. for Academic Access.
SPONS AGENCY	Special Education Programs (ED/OSERS), Washington, DC.
REPORT NO	RR-5
PUB DATE	2002-00-00
NOTE	56p.
CONTRACT	84.324S
PUB TYPE	Reports - Research (143)
EDRS PRICE	EDRS Price MF01/PC03 Plus Postage.
DESCRIPTORS	Academic Accommodations (Disabilities); Cooperating Teachers; *Disabilities; Educational Technology; Grade 9; High Schools; *Inclusive Schools; Instructional Design; Outcomes of Education; *Regular Education Teachers; *Regular and Special Education Relationship; *Research Utilization; Secondary School Teachers; Teacher Attitudes; *Teacher Collaboration; Teacher Role; Teacher Student Relationship; Theory Practice Relationship

ABSTRACT

The fifth in a series of studies investigating the educational context and outcomes for high school students with disabilities, this study examined instruction provided in inclusive general education classes in three high schools in urban areas, three in suburban areas, and three in rural areas. Five ninth-grade classes, including biology, algebra, Spanish I, English, and social studies, were observed in each school. Observers used a time-sampling observation system to record the behaviors of the teachers and students with disabilities. General education teachers rated their satisfaction with aspects related to the education of students with disabilities in general education classes, such as their relationship with special education teachers, the outcomes produced, and their own performance in helping these students succeed. Results indicated that teachers were talking and students were listening a large majority of time in general education classes. No research-based programs and few instructional methods were being used, nor was technology being used to aid instruction. Almost no accommodations were being used for students with disabilities. General education teachers were not very satisfied with the way special education teachers are working with them on behalf of students with disabilities or their own performance. Student Observation Sheet and Teacher Observation Sheet are appended. (Contains 43 references, 21 tables, and 12 figures.) (Author/CR)

Reproductions supplied by EDRS are the best that can be made
from the original document.

ED 469 285

Institute for Academic Access

Research Report #5

The educational context and outcomes for high school students with disabilities: General education classes and the satisfaction of general education teachers

Jean B. Schumaker, Janis A. Bulgren,
Betsy Davis, Bonnie Grossen, Janet Marquis,
Donald D. Deshler, and B. Keith Lenz

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
X This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

2002

EC 309211

IDEAs that Work
U.S. Office of Special Education Programs

Sponsored by the U.S. Department of Education, Office of Special Education Programs Grant # 84.324S

BEST COPY AVAILABLE

Abstract

This descriptive study focused on the instruction provided in inclusive general education classes in nine high schools in four states. Three of the schools were located in urban areas; three were in suburban areas; and three were in rural areas. Five ninth-grade classes, including biology, algebra, Spanish I, English, and social studies, were observed in each school. Observers used a time-sampling observation system to record the behaviors of the teachers and students with disabilities in the classes. General education teachers rated their satisfaction with aspects related to the education of students with disabilities in general education classes such as their relationship with special education teachers, the outcomes produced, and their own performance in helping these students succeed. Results indicated that teachers are talking and students are listening a large majority of time in general education classes. No research-based programs and few instructional methods are being used, nor is technology being used to aid instruction. Almost no accommodations are being used for students with disabilities. Satisfaction ratings were low across the schools and all areas.

In the Individuals with Disabilities Education Act of 1997, Congress specified that students with disabilities are to have *real* access to the general education curriculum. For high school students with high-incidence disabilities, this means that they are to be enrolled in general education courses that are required for high school graduation and that they are to be given the necessary support to enable them to succeed in these courses. In other words, enrolling high school students with disabilities in a variety of elective courses (e.g., wood working, art, choir) as well as physical education for social purposes is no longer an acceptable way to educate a student with disabilities.

This is clearly a tall order for several reasons. First, the structure of high schools presents a number of challenges for including these students in required general education courses. Some of these challenges include lack of communication among special and general education teachers, limited course offerings, lack of professional development experiences for teachers, and lack of vision and articulated support on the part of instructional leaders within the schools (Dailey, Zantal-Wiener, & Roach, 2000).

Second, students with high-incidence disabilities often reach high school without the skills they need to succeed in required general education courses. For example, students with learning disabilities, the largest sub-population of students with disabilities, reach high school reading and writing, on average, at the fourth-grade level. In math, they are performing, on average, at the fifth-grade level (Warner, Schumaker, Alley, & Deshler, 1980). Many of them have poor memories (Bulgren, Hock, Schumaker, & Deshler, 1995; Bulgren, Deshler, & Schumaker, 1997) and are poor spellers (e.g., Warner et al., 1980), so they often only write in their notes what their teachers write on the board (Bulgren, Schumaker, & Deshler, 1988). Many of them also lack the prior knowledge that they need to understand the complex information being presented in their courses (e.g., Bos & Anders, 1988). A large proportion of them think concretely (e.g., Skrtic, 1980) and have difficulty discriminating important from unimportant facts (Lenz, 1984). The majority do not use strategies for coping with specific tasks in school (e.g., Bulgren et al., 1995; Hock, Pulvers, Deshler, & Schumaker, 2001; Hughes & Schumaker, 1991; Schumaker, Deshler, Alley, Warner, & Denton, 1982;), and they do not invent strategies for coping with novel tasks (Ellis, Deshler, & Schumaker, 1989; Warner, Schumaker, Alley & Deshler, 1989).

These deficits translate into the following realities. Many of them cannot decode the long words that they encounter in high school textbooks which are typically written at the 10th-grade level and above (Lenz & Hughes, 1990). The majority have difficulty with writing complete sentences or organized paragraphs in courses where they are asked to write themes (Kline, Schumaker, & Deshler, 1991; Schmidt, Deshler, Schumaker, & Alley, 1989). Many do not know basic math facts at the level of mastery required to do complex math functions. For example,

they do not know how to do the four math operations (addition, subtraction, multiplication, and division) with fractions, a prerequisite for algebra courses (Warner et al., 1980). A large majority of them do not know how to study for high school tests, which often require them to know about 40 to 80 pieces of information. As a result, they are failing their tests (Bulgren et al., 1988; Hock et al., 2001; Hughes & Schumaker, 1991; Hughes, Deshler, Ruhl, & Schumaker, 1993), and, at best, they are barely passing their courses (Hock et al., 2001).

Third, as a result of national standards-based school reform efforts, the curriculum is becoming more and more complex at the high school level. Textbooks contain more information than ever before, and the information is increasingly complex. Teachers are being required to teach more content than they have ever taught. Students are being required to learn more than students have ever learned in the past, and they are being required to retain the information and skills in order to pass high-stakes assessment exams for graduation as well as state competency exams. As a result of the passage of the 1997 Reauthorization of the Individuals with Disabilities Education Act (P.L. 107-15), students with disabilities are supposed to be participating in the general education curriculum and in district and statewide assessments (Goertz, McLaughlin, Roach, & Raber, 1999). However, in addition to failing required courses within the curriculum, a sizable proportion of students with LD have failed state assessments in several states (Olson, 2000a). For example in 1997, 21% of the students in special education in Indiana were not able to pass the exam to graduate from high school which prompted a class-action lawsuit against the state (Olson, 2000b). In 2001, 91% of students with disabilities failed the math section and 82% of students with disabilities failed the language arts section of the high school exit exam in California (Egelko, 2002). Additionally, a substantially smaller percentage of special education students than general education students are meeting state standards in 17 states (Ysseldyke, Thurlow, Langenfield, Nelson, Teelucksingh, & Seyfarth, 1998).

Fortunately, research over the past twenty-five years has identified instructional methods that can be used to teach secondary students with high-incidence disabilities how to learn and how to perform in general education courses. For example, a curriculum, called the *Learning Strategies Curriculum*, has been designed and validated for teaching secondary students the reading, writing, studying, test-taking, and assignment completion strategies that they need to succeed in the general education curriculum (Deshler & Schumaker, 1986). The research that has been conducted on this curriculum indicates that if intensive, and explicit instructional methods are used in small-class settings, students with disabilities can learn the strategies to mastery and generalize their strategy use to a variety of tasks (for a review of the studies, see Schumaker & Deshler, 1992).

In addition, 12 instructional routines, called Content Enhancement Routines (Lenz, Bulgren, & Hudson, 1990), have been designed and validated for use by subject-area teachers as

they deliver instruction in required general education courses. These routines can be used to introduce a course, a unit, or a lesson, teach a concept, compare and contrast concepts, teach the meaning of vocabulary words and other terms (famous people, places, events), draw relationships among main ideas and details, help students remember information, and plan and present assignments to students. The use of these routines has been shown in several research studies to improve the learning of students with disabilities, low-achieving students, normally achieving students, and high-achieving students (for a review of the studies, see Schumaker, Deshler, & McKnight, 2002).

Other instructional methods have been validated to enhance the performance of high school students with disabilities as they learn complex skills or information. For example, an advance organizer at the beginning of a lesson (Lenz, Alley, & Schumaker, 1987) helps students with disabilities retain more information from the lesson. Modeling has been shown to be effective in producing improved learning of a complex math operation (Gildroy, 2002). Elaborated feedback has been shown to be effective in decreasing the number of trials to mastery (Kline et al., 1991). Class-wide peer tutoring has been shown to be effective in improving student learning of high school social studies content (Maheady, Sacca, & Harper, 1988), and class-wide student tutoring teams have been shown to be effective in helping ninth- and tenth-grade students learn math content (Maheady, Sacca, & Harper, 1987). Graphic organizers have been shown to be effective in enhancing the quiz scores of and ability to depict relationships among pieces of information by students with disabilities (Horton, Lovitt, & Bergerud, 1990). Specially designed study guides have been shown to be effective in helping students retain information from their textbooks and earn higher quiz scores (Higgins & Boone, 1992; Horton & Lovitt, 1989; Horton, Lovitt, Givens, & Nelson, 1989). Mnemonic devices have been shown to be effective in helping students with disabilities learn content and earn improved test scores (e.g., Mastropieri & Scruggs, 1989; Scruggs & Mastropieri, 1989a, 1989b). Videodiscs containing subject-matter content in the BIG Accommodations format (Carnine, 1994) have been shown to be effective in helping high school students learn such complex content as bonding, equilibrium, organic compounds, and fractions (Hofmeister, Engelmann, & Carnine, 1989; Kelly, Gersten, & Carnine, 1990).

Unfortunately, although there has been quite a bit of research done on developing individual instructional components or routines for use in teaching secondary students with disabilities, there has been almost no research done on what instructional methods and routines general education teachers are actually using in inclusive required high school classes. That is, whether teachers in today's classrooms are using instructional practices that have been validated is not known. However, as studies have been completed on individual instructional routines and observational data have been collected on teacher behavior, some information has emerged. On

average, general education high school teachers use only two or three components of advance organizers as they begin a lesson (Lenz et al., 1987). They present about 28% of the information possible on concepts, typically naming a concept and one or two examples of the concept and perhaps writing them on the board (Bulgren et al., 1988). In fact, they rarely write much on the board, occasionally writing an isolated word here and there (Bulgren et al., 1988). They provide few mnemonic aides with regard to helping students to remember information; in fact, the average for a group of nine teachers was 0.15 times per class period (Bulgren et al., 1997).

These data point to the need for additional research on what methods high school general education teachers are using in their inclusive courses and how they are spending their time in class. They also point to the need to understand what students with disabilities are doing and are required to do when they are enrolled in these courses. Additionally, research is needed on the relationship between the general education teachers and the special education teachers and the general education teachers' satisfaction with the support that students with disabilities are receiving to help them succeed in general education classes. Research is also needed that is focused on general education teachers' perceptions with regard to whether students with disabilities are learning the skills they need to succeed in required courses, whether they are learning the content of general education courses, as well as their satisfaction with their own support of these students. Thus, the purpose of this study was to gather descriptive information in these areas so that decisions can be made with regard to the instructional design of inclusive general education courses at the high school level.

Methods

Settings

Teachers and students in nine public high schools serving grades nine through twelve in four states participated. Three types of high schools were involved. Three of the high schools (hereafter referred to as "urban schools") represented schools located in high-density areas (i.e., urban/metropolitan areas populated by more than 150,000 people). They were also schools in which more than 50% of the student population was comprised of "students living in poverty." "Students living in poverty" were defined, for the purposes of this study, as students who had applied for and received free or reduced lunch privileges. Three of the high schools (hereafter referred to as "rural schools") represented schools located in low-density population areas (i.e., towns of less than 10,000 people and less than 150 people per square mile) and in which more than 10% of the student population was comprised of students living in poverty. Three of the high schools (hereafter referred to as "suburban schools") represented schools that were located in towns having a population of more than 45,000 people and less than 150,000 people and in which less than 10% of the student population was comprised of students living in poverty.

The student populations in the urban schools ranged in size from 1,031 to 3,508 students, while in the rural schools the populations ranged in size from 330 to 693 students. The student populations in the suburban schools ranged in size from 931 to 1,691 students. (For more information on the participating schools, see Schumaker, Deshler, Lenz, Bulgren, Grossen, Davis, & Marquis, 2002).

Observations took place in general education classrooms in which rigorous ninth-grade general education courses were being taught. A rigorous general education course was defined as a math, English, social studies/history, science, or foreign language course that must be passed by a student in order to earn a standard high school diploma, that contributes credits toward a standard high school diploma (as in the case of a foreign language course), that has been designed for helping students meet state standards, and that was being taught by a teacher who has credentials in the subject area. The specific rigorous courses targeted for this investigation were five courses typically taught to ninth graders: algebra I, ninth-grade English, biology, history, and Spanish I.

Subjects

Teachers. The 34 participating general education teachers (15 urban, 12 suburban, and 8 rural teachers)* were teachers who were teaching the targeted general education courses (algebra I, English, history, biology, Spanish I) to heterogeneous classes of students including students with disabilities. They all volunteered to participate and signed consent forms at the beginning of the study.

Table 1 displays the demographic information about the 28 teachers (10 urban, 10 suburban, and 8 rural teachers) who filled out the questionnaire. 14 of the teachers were females; 14 were males. With the exception of one African-American, one American Indian/Alaskan Native, and three people representing other minority populations, all were white. All had Bachelor's degrees, and 17 had Master's degrees. All were certified to teach in their state, and 26 were certified to teach the subject area of the class being observed. Their mean age was 45.2 years (range = 26 to 66 yrs.), and they had taught for an average of 17.3 years (range = 1 to 40 yrs.). They reported that they had completed an average of 1.5 credit hours in special education courses at a university (range = 1 to 5 hrs.) and had attended an average of 7.7 hours of inservice training on special education topics (range = 1 to 50 hrs.).

- One school principal decided that the school would no longer participate before the observations could be made in the classes. In other schools, teachers did not volunteer in particular subject areas. Thus, instead of the 45 teachers expected, only 35 participated.
- One rural teacher was observed while teaching both biology and algebra classes. He filled out only one demographic questionnaire.

Students. The students who participated in this study were students with disabilities who were present in the classrooms during the class periods that the general education teachers had scheduled for observations. They were students who had been formally classified as having a disability (e.g., a learning disability, emotional disorder/disturbance, behavioral disorder, speech/language disability, physical handicap, visual impairment, hearing impairment, or other health impairment according to state guidelines. They were students who were expected to earn standard high school diplomas by their special education teachers. That is, they were enrolled in the general education course for academic rather than social purposes. Hereafter, this will be the only type of student with disabilities (SWD) referred to in this report.

If no SWDs could be found enrolled in a given general education course in a school (e.g., Spanish I), an at-risk student enrolled in the course was selected for participation. "At-risk (AR) students" were students who had each earned more than one failing grade in a required course in a previous semester or who were already failing at least one required general education course at the time of the study. They were also students who had not been formally classified as having a disability.

All students and their parents were informed about the purpose and procedures of the research project and signed informed consent forms indicating their willingness to participate or their permission for their son/daughter to participate.

Measurement Instruments

The general educators completed two forms. The purpose of the **General Education Teacher Form** was to gather personal information about the teachers. The form contained 27 items that focused on such information as the teacher's age, race, sex, educational history, teaching certifications, and history as a teacher. For the most part, teachers filled in blanks on the form to respond to questions asked about such information as their age, number of years of teaching, and the number of special education courses they had taken. For some items, like for gender, they were given options to choose between or among. (Information derived from this form was reported above in the Subjects Section.)

The purpose of the **General Education Teacher Satisfaction Form**, the other form that the general education teachers completed, was to gather their satisfaction ratings related to the educational program for students with disabilities in their school, its outcomes, and their own performance as teachers. The questionnaire included 46 items formatted with a seven-point Likert-type scale ranging from "1" (Completely Dissatisfied) to "7" (Completely Satisfied). The items were organized in six sections: those pertaining to how the special education teachers work with the general educator; those pertaining to the instruction provided by the special education teachers for the SWDs, those pertaining to progress reports created by special educators and shared with the general educator; those pertaining to outcomes for students with disabilities;

those pertaining to professional development experiences in which the general educator had participated to learn about teaching students with disabilities; and those pertaining to the general educator's own assessment of his/her performance with regard to ensuring SWDs' success (grades of C or above) in general education classes.

In addition to completing the forms, selected general education teachers (those teaching the targeted courses) were observed teaching in their classes with the **General Education Teacher Observation System**. This system was a time-sample recording system comprised of a recording sheet and a behavioral code. On the recording sheet were columns in which the observer recorded the teacher's behavior and other factors associated with the instruction taking place during 10-second intervals. In the first column, the observer recorded the teacher's behavior using a few words or a phrase. In the remaining columns, the observer placed tallies indicating whether or not the behavior was instructional or noninstructional, whether or not the instruction was research-based, the type of motivational and instructional methods being used, the instructional arrangement created for the students, the materials being used by the students, and the sensory modalities being used by the students. The observer also indicated the number of students and teachers with whom the general education teacher was interacting during the interval.

During the same class period that the teachers were observed, the selected student who was present in that class was also observed using the **Student General Education Class Observation System**. Like the system used to observe the teachers, this system was also a time-sample recording system comprised of a recording sheet and a behavioral code. On the recording sheet were columns in which the observer recorded the student's behavior and other factors associated with the ongoing instruction during 10-second intervals. In the first column, the observer recorded the target student's behavior using a few words or a phrase. In the remaining columns, the observer placed tallies indicating whether or not the behavior was instructional or noninstructional, whether or not the instruction during that interval was research-based, the type of academic response the student had made, the materials being used by the student, the instructional grouping in which the student was included, and the sensory modalities being used by the student. The observer also indicated the number of students and teachers with whom the student was interacting during the interval.

Additionally, the observers completed two forms after observing the teachers and the students at the end of each class period. The first form, called the **Classroom Climate Checklist**, contained nine items representing the type of classroom climate the teacher had created in the classroom. For example, some of the items included whether the classroom was neatly arranged, whether there were motivational posters in the room, and whether there were instructional

posters or aids in the room. The observer simply checked "Yes" or "No" to indicate that the item was present or absent in the room.

The second form, called the **Class Description Form**, contained seven items related to what had transpired during the class period. For example, the first item asked the observer to provide a general description of the lesson, the fourth item asked the observer to describe the relationship between the target student and other students, and the sixth item asked the observer to describe the general outcome of the class for the target student. All of the items were open-ended, and the observers wrote their answers in sentence form under each item.

Procedures

A staff member in each school volunteered to be the liaison person for the investigation. This person was contacted and asked for a list of teachers on the general education staff who were teaching the targeted subject-area courses and had students with disabilities enrolled in those courses as well as a list of the times that those students were present in the teachers classes. If no SWDs were enrolled in a targeted subject area course, the names of teachers teaching that course who had at-risk students enrolled in the course were solicited.

The teachers on the list were contacted individually. The research project was explained to them, and they were asked to participate. If they indicated an interest in participating, they were asked to read and sign the consent form. They were also asked to fill out the forms mentioned above (the General Education Teacher Form and the General Education Teacher Satisfaction Questionnaire). The purpose of the form and the way each form was to be filled out was explained to the teacher, and the teacher's questions were answered. The teachers filled out the forms on their own time.

Next, a researcher visited the resource room/support class during each class period in which SWDs were being served there. He/she described the research project to the students and what they would be asked to do. The students were given consent forms to take home to have their parents sign. They were also asked to sign the forms if they were interested in participating in the project. If necessary, SWDs and at-risk students were contacted individually, the procedures explained to them, and they were asked to sign the consent forms and to have their parents sign the forms.

The teachers were then asked to indicate when they might be observed teaching SWDs who were enrolled in their general education classes. Specific times were scheduled for observations. The goal associated with the observations was to observe one class period of instruction for each participating teacher. However, in some schools this was not allowed or, in some cases, possible.

The researcher explained that the observer(s) would visit the scheduled class period and would be writing down the activities of the students and the teachers present in the classroom on

observation sheets. They might have to move around the classroom in order to see what students were doing if students were moving around, but they would be as unobtrusive as possible. The teachers were asked to go about their normal activities and ignore the observers' presence in the classroom. They were also asked to introduce the observers to the students and to instruct the students to go about their activities normally and to ignore the presence of the observers.

Upon arriving in a classroom at the designated time, the observer found a place to sit where both the teacher and targeted students could be observed easily. As soon as the bell rang at the beginning of the class period, the observer began using the Student Observation Sheet (see Appendix A) and the Teacher Observation Sheet (see Appendix B). The observer completed one Teacher Observation Sheet (12, 10-second intervals of teacher observations) and then completed one Student Observation Sheet (12, 10-second intervals of student observations). This was referred to as "one loop" of observations. Then a new loop of observations began and so forth until the bell rang at the end of the hour.

To complete one observation interval for one person, the observer located that person and started a stopwatch. (If two observers were present, they started their stopwatches at the same time.) The observer watched the person for ten seconds. Then the observer wrote down the first instructional behavior in which the person was engaging according to a set of behavioral definitions and filled in the rest of the columns on the observation sheets to categorize the behavior, also according to a set of definitions. If no instructional behavior occurred during the 10-second interval, the first non-instructional behavior observed during the interval was recorded in a few words. Then, a new 10-second interval began.

At the end of the class period, the observer completed the Classroom Climate Checklist and the Class Description form.

Results

Observation Results

Teacher observation results. General education teachers were observed teaching in eight of the nine schools. (Administrators in one of the rural schools decided not to allow the observations before data could be collected.) Figure 1 shows the observation results with regard to the mean percentage of intervals the general education teachers in each school spent in instructional and noninstructional activities. It also shows the mean percentage of intervals the teachers in each school spent using research-based instructional programs. The percentage of instructional intervals ranged from a low of 59.7% to a high of 89.5%. In none of the schools were research-based instructional programs being used.

Figure 2 shows the percentage of intervals in which the teachers were interacting with students and with other teachers. Teacher-student interactions ranged between 69.7% and 95.3%

of the intervals. Teacher-teacher interactions took place in less than 3.3% of the intervals in all of the schools.

Table 2 shows the mean percentage of intervals in which teachers in each school engaged in certain instructional behaviors. With the exception of teachers in one school (Urban School #2), the teachers spent the largest portion of their time lecturing to the students or reading aloud to them (most of this time was spent lecturing). The percentage of intervals in which they engaged in this activity ranged from 28.2% to 88.4%. Other activities in which they spent large portions of time were giving directions, asking questions, monitoring the students (i.e., circulating among them, watching them as they worked). Few, if any, intervals were spent using research-validated methods such as having students verbally rehearse information, using advance organizers, breaking a complex skill into steps and describing them, using content enhancement methods (e.g., graphic devices) or routines. A few intervals in some schools were spent providing elaborated feedback and using simple enhancers (e.g., simple analogies, pictures, charts, and figures). In one school modelling was used during 20% of the instructional intervals, which was an exception because the teachers in the other schools used modelling infrequently or not at all. Writing on the board occurred infrequently in most of the schools, and in some schools it occurred not at all.

Table 3 shows the mean percentage of intervals in which teachers in each school engaged in certain motivational behaviors. In general, the teachers engaged in few motivational behaviors. The largest percentage of intervals spent on any one motivational behavior by any group of teachers in a school was equal to 10%; this was an exception rather than the rule, and it related to teachers' communication of expectations. The motivational behaviors in which the teachers engaged the most across the schools involved the provision of brief forms of positive and negative feedback ("Good job," "Nice idea," "Stop that!") for about 1% to 7.7% of the intervals. In one school (Suburban School #1), rewards were used during 6% of the intervals, and, in four schools, individual counseling was used briefly to motivate students.

Table 4 shows the mean percentage of intervals in which different kinds of materials were being used in the classes. The types of materials being used were somewhat similar across the schools, although the relative amount of time each type of material was used varied. In most of the schools, students were using basic materials (i.e., pencils, paper), visual aids, worksheets, teacher-made materials, and audio-visual aids (i.e., movies, videotapes). In only one of the schools were computers used by students (during 5% of the intervals); research-based materials were not used in any of the schools.

Table 5 shows the results related to the percentage of intervals in which the students were taking part in different types of instructional arrangements during the times the teachers were observed. In all of the schools, students were spending the largest portion of their time in whole-

class arrangements; however, there were different levels of emphasis of whole-class instruction across the schools ranging from 36% to 90% of the intervals. In seven of the eight schools, students spent some time working independently (range was between 6% and 51% of the intervals). Students spent some time working in small groups in seven of the eight schools (range was between 5% and 28%, with six schools at or below the 10% level). In only two of the schools were paired activities observed, and these activities took place in just a few intervals.

Table 6 displays the results for the types of stimuli the teachers had arranged for students. In all of the schools, visual and auditory stimuli were being presented to the students more than 60% of the time. Kinesthetic stimuli were being used somewhat less, ranging between 33% and 83% of the time.

Figures 3 and 4 and Tables 7, 8, 9, 10, and 11 display similar data to those reported above except they are organized according to subject area. As a group, the Spanish teachers are involved in instructional activities (86% of the intervals) and they are interacting with students (94% of the intervals) more than the other teachers. (See Figures 3 and 4.) English and algebra teachers are involved in instructional activities at about the same level (around 76% of the intervals), and biology and history teachers are involved in instructional activities the least of all the teachers, with history teachers spending less than half of class time in instructional activities. Interestingly, the biology, English, and Spanish teachers interact with students during a large majority of the hour (more than 80% or more of the intervals). The difference between their interaction levels (Figure 4) and their levels of instruction (Figure 3) indicate that most of the teachers were spending as much as 10% of the intervals interacting on noninstructional topics.

According to Table 7, algebra and biology teachers spend about the same amounts of time lecturing to students (about 60% of the instructional intervals) and they engage in this instructional behavior more than the other teachers who spend about 40% of the instructional intervals engaged in this activity. English teachers spend about two times as much time as algebra and biology teachers giving directions, and they spend as much as fifteen times as much time listening to students as they speak or read. Biology teachers provide more models of what to do (13% of the instructional intervals) than the other teachers. Algebra teachers write on the board (6.7% of the instructional intervals) more than any of the other teachers. Spanish teachers spend more time asking questions (25.7% of the instructional intervals) than any of the other teachers. Biology and English teachers spend more than twice the time of other teachers and sometimes even seven times as much time as other teachers monitoring students as they worked. Biology teachers use simple enhancers during 8% of the intervals, the most of any of the teachers and as many as eight times as much as some of the teachers. Spanish teachers gave the most elaborated feedback, but this was minimal (only 3% of the intervals).

According to Table 8, the teachers engage in motivational techniques infrequently. Spanish and English teachers spend the most time giving brief positive feedback in about 5% of the intervals. All of the groups of teachers engage in specifying expectations and giving brief positive feedback and brief negative feedback. Providing rationales regarding the benefits of learning something is rarely done by any of the teachers. There was no evidence of contracts being used.

With regard to materials in use in the different subject areas, Table 9 shows that algebra teachers use the most visual aids (during 50.1% of the intervals). Spanish, English, and biology teachers also use visual aids frequently, in about a third of the intervals. Textbooks are used the most in algebra classes, about a third of the time. Workbooks/worksheets are used about half of the time in algebra classes and about a quarter of the time in history classes. Computers were not used at all in most of the subject areas; in algebra, they were used during only a mean of 4% of the time.

Table 10 shows that algebra teachers teach to the whole group 81% of the time whereas, in contrast, biology teachers teach to the whole group 61% of the time. Students are doing independent work at least 14% of the time in all subject areas. Biology classes involve the most group work (22%).

Table 11 displays the data for the sensory stimulation that was available during the observations. Algebra classes involve the most stimulation with stimuli available for all three sensory modalities the large majority of time. Kinesthetic stimuli were present for the fewest intervals in history classes and for the most intervals in algebra classes. Auditory stimuli were available for students the most in Spanish classes (94% of the intervals).

Student observation results. Students were observed in the same schools in which teachers were observed during the same class periods as the teachers. Figure 5 shows the observation results with regard to the mean percentage of intervals the students in each school spent in instructional and noninstructional activities. It also shows the mean percentage of intervals they spent involved in research-based instructional programs. The data in the table indicate that the percentage of instructional intervals for students does not necessarily mirror the percentage of instructional intervals for teachers (Figure 1). For example, although teachers in Suburban School #2 were instructing during a mean of 90% of the intervals, the students were engaged in instructional activities during only 54% of the intervals. The percentage of instructional intervals for students ranged from a low of 54.2% to a high of 73.5%. In none of the schools were the students engaged in research-based instructional programs as they were being observed.

Figure 6 shows the percentage of intervals in which the students were interacting with a teacher and with other students. Student-teacher interactions ranged between 19.4% and 61.8%

of the intervals. Student-student interactions ranged between a mean of 7.6% and 27.8% of the intervals.

Table 12 shows the mean percentage of intervals in which students in each school engaged in certain academic responses during the time they were engaged in instructional activities. Most of the students' instructional time across all the schools was spent listening, with students in six of the schools spending more than half of the instructional intervals listening to the teacher or a movie. Other activities in which students spent large portions of time were reading and writing. However, in two schools (Suburban Schools #1 and 3) students did not engage in much reading. In the three urban schools, students were involved in practice activities of some sort for about 12% of the intervals. Students in the other schools were involved in practice activities less than 8% of the intervals.

Table 13 shows the mean percentage of intervals in which different kinds of materials were being used by the students. Across the schools, students were using the same types of materials, but the amount of time that students spent using the various materials varied widely across the schools. For example, the mean percentage of intervals during which students were referring to visual aids and textbooks ranged from a low of 2% to a high of about 50%, with different schools emphasizing different materials. The use of teacher-made materials (e.g., handouts, assignment sheets) ranged widely, too, from 0% in a couple of schools to 47% in another. In all of the schools, students were using basic materials (i.e., pencils, paper) at least 30% of the time. In none of the schools were students using computers or research-based materials.

Table 14 shows the results related to the percentage of intervals in which the students were supposed to be taking part in different types of instructional arrangements. In all of the schools except one (Rural School #2), students were supposed to be spending some of their time working independently. In one school (Urban School #1), this was about half of the time. However, whole-group activities were taking place during large portions of the time in all of the schools ranging between 35% and 94% of the intervals. Small-group activities took place in all of the schools as well, but in some schools the amount of time spent in these activities was almost negligible. Paired activities took place in three of the eight schools.

Table 15 displays the results for the types of stimuli the teachers had arranged for students during the intervals in which the students were being observed. Teachers had arranged some visual, auditory, and kinesthetic stimuli for the students in all of the schools with varying levels of use across the schools. In three of the schools, visual stimuli were present during a mean of 90% or more of the intervals (range = 62% to 92%). Kinesthetic stimuli were used the least across the schools (range = 28% to 79%).

Figures 7 and 8 and Tables 15, 16, 17, 18, and 19 show the same results for students according to the courses in which they were enrolled. Figure 7 indicates that students spent the most time engaged in instructional activities in history classes, and Figure 8 indicates that they spent the least time interacting with teachers in the same classes (M = 28% of the intervals). Otherwise, percentages of instructional intervals seem somewhat comparable across subject areas except that students spent close to half of the time interacting with their Spanish teachers, the most of any group of teachers.

According to Table 16, students spend large portions of their instructional time (more than 40%) listening across all types of courses. They spend the most time listening in history and Spanish courses. They spend about a third of the time writing in most classes except history classes (M = 17% of the instructional intervals). They spend 13% of their instructional time answering Spanish teachers' questions, which is about 4 times as much time as in any other type of course. This is not surprising since Spanish teachers spend more time asking questions than any of the other teachers. Students in biology classes spend the most time engaged in academic talk with each other and with the teacher when compared to the other types of classes and two times as much time as students in Spanish class. Algebra students spend about a fifth of their instructional time practicing new skills, which was twice as much time in this activity than English students and four times as much time as biology students.

With regard to student use of materials in the different subject areas, Table 17 shows that algebra students were attending to visual aids the most of any of the groups of students (during 49% of the intervals). Spanish students also were using visual aids frequently, in more than a third of the intervals. English and biology students were using them about a quarter of the time. Textbooks were being used by students the most in algebra classes, a mean of 29.2% of the time. Workbooks/worksheets were being used about 43% of the time in algebra classes and about a quarter of the time in English, history, and Spanish classes. Computers were not being used at all by the students in any of the subject areas; neither were research-based materials.

Table 18 shows that the students were spending large portions of their time in whole-group activities across the subject areas, with algebra being the course in which this arrangement is used the most. The mean percentage of intervals students were participating in whole-group activities ranged from 59.2% to 82%. Students engaged in independent work in all subject areas, but it ranged between a low of 13% of the intervals (in English) to a high of 30% of the intervals (in history). No group work took place in algebra and very little group work took place in history and Spanish classes. Students engaged in small-group activities in English (M = 25.5%) and biology (M = 19.8 %). Students engaged in a few paired activities in history and Spanish classes.

Table 19 displays the data for the sensory stimulation that was available in the different subject areas during the student observations. As with the teacher observations, algebra classes involved the most stimulation with stimuli available for all three sensory modalities the majority of time. Biology and history classes involved the least stimulation.

Classroom results. Table 20 shows the mean percentage of "Yes" responses recorded by observers as they filled out the Classroom Climate Checklist for general education classrooms in each school in which teachers and students were observed. The results show that all of the classrooms were devoid of litter. Almost all of the classrooms were neatly arranged. Few of the classrooms had any evidence of a school-wide discipline program. About 40% of the classrooms across the types of schools had structures for handing in student products. The other factors were more variable across the types of schools. For example, only about a third of the suburban classes had motivational posters, while at least twice as many classrooms in the urban and rural schools had motivational posters.

Table 21 displays the results from the observers' descriptions of the classes that were observed. Scorers read the observers' descriptions for each item on the Class Description Form and rated the descriptions as a "3" for "positive," "2" for "neutral," and "1" for "negative." Mean ratings varied widely across the teachers' classes, with some classes receiving low mean ratings of 1, and others receiving ratings as high as 2.8. There seem to be no patterns related to schools or subject areas except that the classes in Rural School #2 have uniformly good scores. In all of the other schools, there was at least one class in the "1" range.

Satisfaction Results

Figure 9 summarizes the results derived from the General Education Teacher Satisfaction Questionnaire according to type of school (urban, rural, suburban) for 65 teachers. It shows the mean ratings provided by the teachers across items within each of the six sections of the questionnaire. Overall, the satisfaction expressed by the teachers was relatively low. The teachers in the suburban schools expressed the most satisfaction, with all but two of their mean ratings at the 5.0 level or above; however, none of their mean ratings reached the satisfied ("6") level. Most of the mean ratings for teachers in the urban and rural schools were within the "4" range; only two mean ratings reached or exceeded the "5" level. Overall, the teachers were least satisfied with the professional development experiences that they had had to help them ensure students' success in required general education classes (the mean rating for all the teachers was 4.0), closely followed by their disgruntlement with the way the special education teachers worked with them.

Figures 10,11, and 12 show the summary results for teachers in each of the urban, rural, and suburban schools, respectively. These figures show that the satisfaction of the teachers varied within each type of school and across the sections of the questionnaire. For example,

within the suburban schools (Figure 12), teachers in one of the schools (Suburban School #2) provided ratings that were close to the satisfaction level in four of the sections, while teachers in the other two suburban schools provided very low ratings in some of the sections. In fact, the teachers in Suburban School #2 supplied the most consistently high ratings when compared to all the other schools. Nevertheless, none of the teachers in any of the schools provided ratings in the satisfied range ("6" and above). Very few of the mean ratings provided by the rural and urban teachers reached or exceeded the "5" level. The general education teachers, as a group, were the least satisfied with regard to the outcomes being achieved and their own performance related to ensuring the success of students in general education classes.

Discussion

The results of this descriptive study show that the instructional methods used by general education teachers in inclusive general education classes may vary across schools and subject areas to some extent. That is, in some schools the teachers were more highly engaged in instruction than in others; in some subject areas, they were more highly engaged in instruction than others. In fact, in some subject areas and in some schools, teachers were engaged in instruction just slightly more than half the time. Similarly, in some schools and subject areas, students were engaged in instruction for differing proportions of time. Sometimes, as is the case in one school, students were engaged in instructional activities only about half of class time. This is cause for concern because if half of class time is being lost in a class, half of the potential for learning is being lost.

What is common across the schools and subject areas is that the teachers are talking during a large percentage of the instructional time, mostly to the whole group. They are either lecturing, reading aloud, giving directions, or asking questions. Not surprisingly, students are spending the largest proportion of their instructional time listening and not very much time talking. Although they are spending some time reading, writing, and practicing new skills, this time is limited given the fact that students are engaged in instructional activities in most of the schools about half or 60% of the time and they are engaged in reading for less than a third of that time. In some schools, the students were reading as little as two minutes and as much as 9 minutes per class period, on average. They were practicing new skills for as little as .6 of a minute and as much as 3.6 minutes, on average.

Unfortunately, the participating teachers across the board were not using research-based programs, and they engaged in few research-based instructional and motivational methods. Teachers in one school used Content Enhancement Routines (Schumkaer, Deshler, & McKnight, 2002) infrequently, but most of the teachers did not use them. Occasionally, they used a single instructional method such as a model or elaborated feedback.

With regard to materials, students were using traditional materials like pencils and paper during large portions of the time along with textbooks, worksheets, and visual aides. Interestingly, teacher-made materials were being used in all the schools and subject areas, as were audio-visual materials (videotapes). Almost no computers were used across the schools. Individual work was used in all the schools and subject areas. Small group-activities were used in all the schools except one and in all the subject areas. Paired activities were never used while the teachers were being observed, but they were used in three of the schools during a few intervals when the students were observed.

These results provide support for the findings highlighted in the introduction in that they indicate that teachers of secondary subject-area courses are spending large proportions of their instructional time talking, and students are listening. They also indicate that research-based instructional programs, methods, and materials are not being used very much and, in many cases, they are not used at all. Computer-based instruction seems to be largely missing in the classes.

These results are cause for concern because researchers have found that students must be active in learning activities if they are to make progress. If students are not engaged in instruction at all for a third to a half of the instructional period, and then they are passively listening and not actively engaged in instruction during as many as two-thirds of the instructional intervals, this means that students in some schools are actively involved in instruction for only about 8 minutes out of each 45 or 50-minute class period.

There is also cause for concern because these findings indicate that teachers of inclusive classes are not using instructional methods that will help their students learn information and skills at a level where they can succeed in courses. Lecture seems to be the preferred method of instruction, and videotapes are often being used to deliver information when the teacher is not speaking. Although discussions are being held at times with the teacher asking questions, students with disabilities are not often engaged in answering questions, except perhaps in a foreign language course (and very few students with disabilities are actually enrolled in these courses).

The satisfaction results indicate that the general education teachers, as a group, are not very satisfied with the way special education teachers are working with them on behalf of students with disabilities. They are especially not satisfied with the professional development experiences they have had with regard to teaching these students. Also they are not satisfied with their own performance in helping these students succeed in their courses.

These results are not surprising, given the small numbers of students with disabilities who were actually enrolled in the teachers' courses (see Schumaker, Lenz, Bulgren, Davis, Grossen, Marquis, & Deshler, 2002 for more information on this). In fact, during the observational portion of this study, many volunteering teachers' classes could not be used because they did not contain

students with disabilities. In some cases, no classes could be found in a subject area in a given school in which students with disabilities were enrolled.

Clearly, these findings are limited to the participating schools, and these schools do not represent a national sample of schools. However, according to the knowledge and experience of the researchers, these schools do seem to be representative of the kinds of educational experiences that students are receiving in many schools across the nation. Future research needs to address methods for ensuring that research-based practices are used in high-school general-education courses so that students with disabilities can enroll in them with a chance of success.

References

Bos, C.S. & Anders, P.L. (1988, February). *Toward an interactive model: Teaching text-based concepts to learning disabled students.* Paper presented at the meeting of the International Academy for Research in Learning Disabilities, Los Angeles, CA.

Bulgren, J.A., Deshler, D.D., & Schumaker, J.B. (1997). Use of a recall enhancement routine and strategies in inclusive secondary classes. *Learning Disabilities Research & Practice, 12*(4), 198-208.

Bulgren, J.A., Hock, M.F., Schumaker, J.B., & Deshler, D.D. (1995) the effects of instruction in a paired associates, strategy on the information mastery performance of students with learning disabilities. *Learning Disabilities Research and Practice, 10*(1), 22-37.

Bulgren, J.A., Schumaker, J.B., & Deshler, D.D. (1988). Effectiveness of a concept teaching routine in enhancing the performance of LD students in secondary-level mainstream classes. *Learning Disability Quarterly, 11*(1), 3-17.

Carnine, D. (1994). The BIG Accommodations Program. *Educational Leadership, 51*, 87-88.

Dailey, D., Zantal-Wiener, K., & Roach, V. (2000). *Reforming high school learning: The effect of the standards movement on secondary students with disabilities*. Alexandria, VA: Center for Policy Research on the Impact of General and Special Education Reform.

Deshler, D.D., & Schumaker, J.B. (1986). Learning strategies: An instructional alternative for low-achieving adolescents. *Exceptional Children, 52*(6), 583-590.

Egelko, B. (2002). State must provide for disabled on test. *San Francisco Chronicle*, February 22, p. A21.

Ellis, E.S., Deshler, D.D., & Schumaker, J.B., (1989). Teaching adolescents with learning disabilities to generate and use task-specific strategies. *Journal of Learning Disabilities, 22*(2), 108-119, 130.

Gildroy, P. G. (2001). *The Development and Evaluation of an Instructional Modeling Routine for Students with Learning Disabilities.* Unpublished doctoral dissertation, University of Kansas, Lawrence.

Goertz, M.E., McLaughlin, M.J., Roach, V., & Raber, S.M. (1999). What will it take? Including students with disabilties in standards-based education reform. In T. Parrish, J. Chambers, & S. Guarino (Eds.), *Funding special education: Yearbook of the American Education Finance Association* (pp. 40-61). Thousand Oaks, CA: Corwin Press, Sage Publications.

Higgins, K., & Boone, R. (1992). Hypermedioa computer study guides for social studies: Adapting a Canadian history text. *Social Education, 56*(3), 154-159.

Hock, M.F., Pulvers, K.A., Deshler, D.D., & Schumaker, J.B. (2001). The effects of an after-school tutoring program on the academic performance of at-risk and students with learning disabilities. *Remedial and Special Education, 22*(3), 172-186.

Hofmeister, A.M., Engelmann, S., & Carnine, D. (1989). Developing and validating science education videodiscs. *Journal of Research in Science Teaching, 26*(8), 665-667.

Horton, S.V., & Lovitt, T.C. (1989). Using study guides with three classifications of secondary students. *Journal of Special Education, 22*(4), 447-462.

Horton, S.V., Lovitt, T.C., & Bergerud, D. (1990). The effectiveness of graphic organizers for three classification of secondary students in content area classes. *Journal of Learning Disabilities, 23*(1), 12-22.

Horton, S.V., Lovitt, T.C., Givens, A., & Nelson, R. (1989). Teaching social studies to high school students with academic handicaps in a mainstream setting: Effects of a computerized study guide. *Journal of Learning Disabilities, 22*(2), 102-107.

Hughes, C.A., & Schumaker, J.B. (1991) Test-taking strategy instruction for adolescents with learning disabilities. *Exceptionality, 2*, 205-221.

Hughes, C.A., Deshler, D.D., Ruhl, K.L., & Schumaker, J.B. (1993) Test-taking strategy instruction for adolescents with emotional and behavioral disorders. *Journal of Emotional and Behavioral Disorders, 1*(3), 188-89.

Kelly, B., Gersten, R., & Carnine, D. (1990). Student error patterns as a function of curriculum design: Teaching fractions to remedial high school students and high school students with learning disabilities. *Journal of Learning Disabilities, 23*(1), 23-29.

Kline, F. M., Schumaker, J. B., & Deshler, D. D (1991). Development and validation of feedback routines for instructing students with learning disabilities. *Learning Disability Quarterly, 14*(3), 191-207.

Lenz, B. K. (1984). *The effect of advance organizers on the learning and retention of LD adolescents within the contexts of a cooperative planning model* (Final research report submitted to the U.S. Department of Education, Special Education Services).

Lenz, B.K., & Hughes, C.A. (1990). A work identification strategy for adolescents with learning disabilities. *Journal of Learning Disabilities, 23*(3), 149-158, 163.

Lenz, B.K., Alley, G.R., & Schumaker, J.B. (1987). Activating the inactive learner: Advance organizers in the secondary content classroom. *Learning Disability Quarterly, 10*(1), 53-67.

Lenz, B.K., Bulgren, J.A., & Hudson, P. (1990). Content enhancement: A model for promoting the acquisition of content by individuals with learning disabilities. In T. E. Scruggs & B. L. Y. Wong (Eds.), *Intervention research in learning disabilities* (pp. 122-165). NY: Springer-Verlag.

Maheady, L., Sacca, M.K., & Harper, G.F. (1987). Classwide student tutoring teams: The effects of peer-mediated instruction of the academic performance of secondary mainstreamed students. *Journal of Special Education, 21*(3), 107-121.

Maheady, L., Sacca, M.K., & Harper, G.F. (1988). Classwide peer tutoring with mildly handicapped high school students. *Exceptional Children, 55*(1), 52-59.

Mastropieri, M.A., & Scruggs, T.E. (1989). Mnemonic social studies instruction: Classroom applications. *Remedial and Special Education, 10,* 40-46.

Olson, L. (2000a). Worries of a standards "backlash" grow. *Education Week, 30,* 1-13.

Olson, L. (2000b). Indiana case focused on special education: Suit challenges high stakes testing. *Education Week, 38,* 1-15.

Schmidt, J.L., Deshler, D.D., Schumaker, J.B., & Alley, G.R. (1989). Effects of generalization instruction on the written language performance of adolescents with learning disabilities in the mainstream classroom. *Reading, Writing, and Learning Disabilities, 4*(4), 291-309.

Schumaker, Deshler, & McKnight (2001). Ensuring success in the secondary general education curriculum through the use of teaching routines. In G. Stover, M. R. Shinn, & H. M. Walker (Eds.), *Interventions for achievement and behavior problems*, Washington, DC: National Association of School Psychologists.

Schumaker, J. B., & Deshler, D. D. (1992). Validation of learning strategy interventions for students with LD: Results of a programmatic research effort. In B. Y. L. Wong (Ed.). *Intervention research with students with learning disabilities.* New York: Springer-Verlag.

Schumaker, J. B., Deshler, D. D., & McKnight, P. (2002). Ensuring success in the secondary general education curriculum through the use of teaching routines. In G. Stover, M. R. Shinn, & H. M. Walker (Eds.), *Interventions for achievement and behavior problems*, Washington, DC: National Association of School Psychologists.

Schumaker, J.B., Deshler, D.D., Alley, G.R., Warner, M.M., & Denton, P.H. (1982). Multipass: A learning strategy for improving reading comprehension. *Learning Disability Quarterly, 5(*3), 295-304.

Schumaker, J.B., Lenz, B.K., Bulgren, J.A., Davis, B., Grossen, B., Marquis, J., & Deshler, D.D. (2002). *The educational context and outcomes for high school students with disabilities: Special education programs and the perceptions of special education teachers.* Lawrence: The University of Kansas Institute for Academic Access.

Schumaker, J.B., Deshler, D.D., Lenz, B.K., Bulgren, J.A., Grossen, B., Davis, B. & Marquis, J. (2002). *The educational context and outcomes for high school students with disabilities:*

Overview of the study and findings. Lawrence: The University of Kansas Institute for Academic Access.

Scruggs, T.E. & Mastropieri, M.A. (1989a). Mnemonic instruction of LD students: A field-based evaluation. *Learning Disability Quarterly, 12,* 119-125.

Scruggs, T.E. & Mastropieri, M.A. (1989b). *Classroom applications of mnemonic instruction: Acquisition, maintenance, and generalization.* West Lafayette, IN: Purdue University, Department of Educational Studies.

Skrtic, T. (1980). *Formal reasoning abilities of learning disabilities adolescents (Research Report # 7).* Lawrence, KS: University of Kansas Institute for Research in Learning Disabilities.

Warner, M.M., Schumaker, J.B., Alley, G.R., & Deshler, D.D. (1980). Learning disabled adolescents in public schools: Are they different from other low achievers? *Exceptional Education Quarterly, 1*(2), 27-35.

Warner, M.M., Schumaker, J.B., Alley, G.R., & Deshler, D.D. (1989). The role of executive control: An epidemiological study of school-identified learning disabled and low-achieving adolescents on a serial recall task. *Learning Disabilities Research, 4*(2), 107-118.

Ysseldyke, J., Thurlow, M., Langenfield, K., Nelson, J.R., Teelucksingh, E., & Seyfarth, A. (1998). *Educational results for students with disabilities: What do the data tell us?* (Technical Report 23). Minneapolis: University of Minnesota, National Center on Educational Outcomes.

Table 1(a)
Mean percentages of observed teachers in specific demographic groups

	Overall	Urban	Suburban	Rural
Male	50	50	40	62.5
Female	50	50	60	37.5
Of Hispanic origin	0	0	0	0
Not of Hispanic origin	100	100	100	100
Black/African American	3.6	10	0	0
American Indian/Alaskan Native	3.6	0	10	0
White	78.6	80	80	75
Other	10.7	10	10	12.5
Have Bachelor's Degree	100	100	100	100
Have Master's Degree	60.7	50	80	50
Have Doctorate	3.6	0	10	0
Have Other Degree	14.3	20	10	12.5
Are certified to teach in their state	100	100	100	100

Table 1(b)
Total means for other general education teacher demographic information

	Overall	Urban	Suburban	Rural
Age as of 4/12/02	45.2	43	45.4	48
# of years teaching	17.3	13.8	17.6	21.4
# college/university SPED courses completed	1.5	2	1.2	1.1
Hrs. of SPED in-service programs attended	7.7	9.1	3.1	11.6
# professional organization memberships	2.1	2.2	2.3	1.8

Table 2
Mean percentage of intervals that general education teachers engaged in instructional behaviors by school

	Rural Schools		Suburban Schools			Urban Schools			Total
Behavior	1	2	1	2	3	1	2	3	
Lecture/read	45.5	88.4	49.2	37.7	59.8	36.1	28.2	36.9	47.4
Give directions	23.1	11.9	13.6	36.4	17.3	15.6	37.4	15.1	21.8
Listening	1.4	3.7	4.2	3.9	5.4	11.1	0.9	5.3	4.6
Ask question	9.5	25.8	17.2	16.3	8.6	23.8	17.5	6.1	15.9
Monitor	25.6	7.9	11.2	22.2	6.3	12.6	17.4	16.2	15.1
Model	0	0	4.8	20.5	2.3	0	6.5	1.5	4.6
Verbal rehearse	0	0	0	0	0	0	0.6	0	0.1
Simple enhancer	1.8	3.7	8.9	1.9	3.1	3.3	0	6.2	3.4
Advance org.	0	0	0	0	0.5	0	0	0	0.1
Role play	0	0	0	0	0	0	0	0	0
Content enhance	0	0	0	0	0.8	0	0	0	0.1
Elaborated feedback	0	0.3	4.2	0	5.5	3.5	0	2.9	1.9
Write on board	8.3	0	2.6	0	1.3	0	0.7	0.5	1.4
Describe skill/seq.	0	0	0	0	4.3	0.5	0	0	0.6

Table 3

Mean percentage of intervals in which general education teachers engaged in motivational behaviors

	Rural Schools		Suburban Schools			Urban Schools			Total
Behavior	1	2	1	2	3	1	2	3	
Expectation	0.5	0.9	0	0	0	1.6	10.1	0.6	1.9
Brief pos. feedback	1.2	3.4	2.4	4	2.9	4.9	1.9	4.8	3.3
Brief neg. feedback	0.5	0.3	2.6	1.1	1.6	2.7	7.6	1	2.2
Reward	0	0	6.3	0	0	0	0.3	0	0.6
Punishment	0	0	0	0	0	0.5	0	0.5	0.1
Give rationales	0	0	0	1.8	0	0	0	0.5	0.3
Counseling	0	0	0	0	2.5	0	1.2	2	0.7
Write contracts	0	0	0	0	0	0	0	0	0

Table 4
Mean percentage of intervals in which general education teachers used certain materials

	Rural Schools		Suburban Schools			Urban Schools			Total
Materials	1	2	1	2	3	1	2	3	
Visual aid	26.4	42.8	37.5	51.4	22.3	28.6	4.8	42.7	32.2
Textbook	36.1	10.6	8.3	12	9.7	6.7	10.3	31.9	15.7
Worksheet/wbk.	13.9	32	37.5	41.1	20.3	10.8	28.6	29.8	26.7
Basic materials	44.1	39.8	59.7	39.4	65.6	35.4	32.5	48.6	44.4
Teacher-made	13.9	46	31.9	4.7	5.2	23	8.9	29.2	20.3
Published controlled	0	0	0	0	0	0	0	0	0
Activities	0	0	0	0	0	0	8.1	0.5	1.2
Audio-visual	0	7.5	37.5	6.7	7.3	25.9	31.5	16.2	16.1
Periodical	0	2.3	0	0	0	0.8	0	0	0.4
Computer	0	0	0	0	0	0	0	5	0.7
Misc.	13.2	0	26.4	12	0	22.9	0	13.2	10.3
Research-based	0	0	0	0	0	0	0	0	0

Table 5
Mean percentage of intervals in which general education classes were in certain instructional arrangements

	Rural Schools		Suburban Schools			Urban Schools			Total
Arrangement	1	2	1	2	3	1	2	3	
Entire group	57.6	89.8	52.8	66.2	64.1	35.5	79.4	88.3	67.8
Pairs	2.8	0	4.2	0	0	0	0	0	0.7
Small group	27.8	5.2	9.7	23.4	10.4	7.2	6.4	5.8	11.7
Individual	11.8	0	33.3	10.4	25.1	50.8	12.8	5.9	18

Table 6
Mean percentage of intervals in which general education teachers used various modalities

	Rural Schools		Suburban Schools			Urban Schools			Total
Modality	1	2	1	2	3	1	2	3	
Visual	59.7	62.2	77.8	83.3	62.4	69.9	70.3	89.9	72.2
Auditory	80.9	86.2	77.8	92.7	89.7	65.9	75.5	89.2	82.3
Kinesthetic	32.6	47.9	83.3	51.9	63.3	51.9	38.3	46.6	50.5

Table 7
Mean percentage of intervals that general education teachers engaged in instructional behaviors by subject

Behavior	Algebra	Biology	English	History	Spanish	Total
Lecture/read	61.3	56.1	41.2	39.2	38.9	47.4
Give directions	14.6	15.8	27.8	23.9	27.5	21.8
Listening	1.9	1.4	12.8	4.7	4	4.6
Ask question	16	10.2	18.8	9.4	25.7	15.9
Monitor	5.1	22.7	28	10.3	8.5	15.1
Model	4.7	12.7	0	0	2.9	4.6
Verbal rehearse	0	0	0	0	0.4	0.1
Simple enhancer	0.7	8.4	2.4	2.7	1.1	3.4
Advance org.	0	0.2	0	0	0	0.1
Role play	0	0	0	0	0	0
Content enhance	0	0	0	0	0.4	0.1
Elaborate feedback	1.3	1.2	2	1.8	3	1.9
Write on board	6.7	0.2	1.3	0	0.3	1.4
Describe skill/seq.	0	0	0.4	0	2.2	0.6

Table 8
Mean percentage of intervals in which general education teachers engaged in motivational behaviors by subject

Behavior	Algebra	Biology	English	History	Spanish	Total
Expectation	2.5	2.4	1.2	2.8	0.6	1.9
Brief pos. feedback	3.7	2.1	4.8	1.5	4.8	3.3
Brief neg. feedback	2	2.2	2.4	2.2	2.2	2.2
Reward	0	0	0.2	2.7	0	0.6
Punishment	0	0	0.4	0	0.3	0.1
Give rationales	0	0.4	0	0	1	0.3
Counseling	1.7	0	1	0	1.3	0.7
Write contracts	0	0	0	0	0	0

Table 9
Mean percentage of intervals in which general education teachers used certain materials by subject

Materials	Algebra	Biology	English	History	Spanish	Total
Visual aid	50.1	33.2	30.6	14.9	34	32.2
Textbook	36.8	14.2	12.1	7.9	11.1	15.7
Worksheet/wbk.	42.1	24.2	17.4	23.7	27.6	26.7
Basic materials	58.9	47.8	48.9	20.6	47	44.4
Teacher-made	23.3	19.9	24	12.6	22.5	20.3
Published controlled	0	0	0	0	0	0
Activities	0.4	0	0	0.2	4.9	1.2
Audio-visual	26.6	10.4	6.3	28.4	11.4	16.1
Periodical	0	0.5	1.9	0	0	0.4
Computer	4.2	0	0	0	0	0.7
Misc.	29.5	12.2	6.9	4.2	1.8	10.3
Research-based	0	0	0	0	0	0

Table 10

Mean percentage of intervals in which general education classes were in certain instructional arrangements by subject

Arrangement	Algebra	Biology	English	History	Spanish	Total
Entire group	80.5	61.2	65.2	70.5	65.2	67.8
Pairs	0	0	0.	1.8	1.4	0.7
Small group	0.5	22.3	17.2	5	10.1	11.7
Individual	18.3	14.2	17.2	20.8	20.1	18

Table 11

Mean percentage of intervals in which general education teachers used various modalities by subject

Modality	Algebra	Biology	English	History	Spanish	Total
Visual	85.4	60.3	73.4	77.5	70.3	72.2
Auditory	84	72.4	76.9	84.6	94.2	82.3
Kinesthetic	70.3	43.4	56.5	29.3	57.4	50.5

Table 12

Mean percentage of intervals in which students in each school responded during instructional intervals

	Rural Schools		Suburban Schools			Urban School			Total
	1	2	1	2	3	1	2	3	
Listening	25	65.2	51.7	64.8	61.3	34.6	51.6	59.3	51.9
Reading	31.5	15.1	5.1	28.2	7.1	36.1	17.8	17.4	21
Writing	47.7	28.6	32.3	29.2	27.4	36.2	22.2	25.5	30.8
Ask question	3.9	3.3	4.2	3.3	0	0.8	2	0	2.2
Answer question	3.1	3.7	0	4.1	1.8	7.3	9.9	1	4.2
Academic game	0	0	0	0	0	0	0	0	0
Academic talk	2.6	8.3	5.1	5.8	2.4	1.7	0	0.8	3.3
Practice	2.1	0	0	8.3	6.2	12.3	12.6	11.8	7.2
Transition	2.4	13.5	1.6	0	0.9	1.6	0.3	0.8	2.8

Table 13
Mean percentage of intervals in which the students in each school were using particular materials

	Rural Schools		Suburban Schools			Urban Schools			Total
	1R	2R	1S	2S	3S	1U	2U	3U	
Visual aid	15.3	43.9	44.1	32.7	50	25.3	2.5	34.5	29.7
Textbook	48.3	13.1	6.5	9.2	31.9	2.1	9.8	28.3	17.7
Worksheet/wbk.	24.8	31.1	32.6	35.4	15.3	25.7	25.2	18.6	26.4
Basic materials	66.5	47.8	34.4	37.9	56.3	37.2	32.3	30.1	41.9
Teacher-made	7.6	46.7	27.2	0	0	25.3	10.9	23.8	18.5
Published controlled	0	0	0	0	0	0	0	0	0
Activities	0	0	0	0	0	0	5.2	0	0.7
Audio-visual	0	12.5	35.2	0.4	11.1	20.3	22.9	32.5	16.6
Periodical	0	2.9	0	0	0	1.3	0	0	0.6
Computer	0	0	0	0	0	0	0	0	0
Misc.	8.3	0	20.9	7.1	0	15.1	0	11.1	7.5
Research-based	0	0	0	0	0	0	0	0	0

Table 14
Mean percentage of intervals in which the students were observed taking part in different types of instructional arrangements

	Rural Schools		Suburban Schools			Urban Schools			Total
	1R	2R	1S	2S	3S	1U	2U	3U	
Entire group	47.9	93.5	75.7	73.6	75	35.4	77.7	60.1	67.2
Pairs	4.2	0	0.9	0	0	6.1	0	0	1.4
Small group	23.4	6.5	13.3	9.6	2.8	10	10.7	9.4	10.5
Individual	24.5	0	10	16.4	22.2	48.5	11.5	30.5	20.7

Table 15
Mean percentage of intervals in which various types of stimuli has been arranged by the teachers

	Rural Schools		Suburban Schools			Urban Schools			Total
	1R	2R	1S	2S	3S	1U	2U	3U	
Visual	97.4	87	73.3	70	92.4	86.5	59.3	91.8	81.7
Auditory	45.5	70.6	87	69.2	88.2	62.4	47.3	83.4	67.8
Kinesthetic	37.5	60.4	63.3	32.5	79.2	55	29	45.3	48.2

Table 16
Mean percentage of intervals in which students in each subject responded during instructional intervals

	Algebra	Biology	English	History	Spanish	Total
Listening	44.8	44	47.8	67.1	56.3	51.9
Reading	17.5	20.7	28.1	24.4	15.5	21
Writing	38.1	35.6	34.5	17	28.8	30.8
Ask question	1.8	4.3	2.8	0	1.7	2.2
Answer question	3	1.6	3.7	0	13.2	4.2
Academic game	0	0	0	0	0	0
Academic talk	2.4	7.8	0.3	1.2	3.7	3.3
Practice	21.2	5.2	9.8	0	0.4	7.2
Transition	1.1	2.3	5.1	2.5	3.3	2.8

Table 17
Mean percentage of intervals in which the students in each subject were using certain kinds of materials

	Algebra	Biology	English	History	Spanish	Total
Visual aid	49	24.8	27.2	12.6	34.9	29.7
Textbook	29.2	21.5	14.4	14.1	8.5	17.7
Worksheet/wbk.	43.1	12.9	24.1	28.7	24.8	26.4
Basic materials	68.9	38.5	41	22.6	38.6	41.9
Teacher-made	18.8	18.3	27.7	5.4	23.4	18.5
Published controlled	0	0	0	0	0	0
Activities	0	0	0	0	3.7	0.7
Audio-visual	17.9	10.6	5.3	36.1	12.5	16.6
Periodical	0	0.8	2.4	0	0	0.6
Computer	0	0	0	0	0	0
Misc.	20.2	10.9	1.4	0.4	3.3	7.5
Research-based	0	0	0	0	0	0

Table 18

Mean percentage of intervals in which the students were taking part in different types of instructional arrangements

	Algebra	Biology	English	History	Spanish	Total
Entire group	82	59.2	61.4	68.5	65.4	67.2
Pairs	0	0	0	1.2	6	1.4
Small group	0	19.8	25.5	0.3	7.5	10.5
Individual	18	20.9	13.1	30	22.8	20.7

Table 19

Mean percentage of intervals in which various types of stimuli had been arranged by the teacher

	Algebra	Biology	English	History	Spanish	Total
Visual	94.3	78.8	76.5	81.7	77	81.7
Auditory	73.4	51.4	78	66	74	67.8
Kinesthetic	71	40.4	59	29.7	43.7	48.2

Table 20
Mean percentage and number of "yes" answers marked by observers in general education classrooms

	Rural		Suburban		Urban		Total	
	%	N=9	%	N=11	%	N=15	%	N
Is there evidence of a school-wide discipline program?	33.3	3	9.1	1	26.7	4	22.8	8
Is the classroom neatly arranged?	100	9	90.9	10	100	15	97.1	34
Is the classroom devoid of litter?	100	9	100	11	100	15	100	35
Are there structures in place for handing in student products?	44.4	4	45.5	5	40	6	42.9	15
Are there motivational posters in the room?	66.7	6	36.4	4	73.3	11	60	21
Are there instructional posters in the room?	100	9	72.7	8	80	12	82.9	29
Is there something in the room that connects the classroom to the larger school?	77.8	7	45.5	5	53.3	8	57.1	20
Does the room represent the teacher's personal touch?	77.8	7	63.6	7	80	12	74.3	26
Are there visual displays of student academic work?	88.9	8	72.7	8	53.3	8	68.6	24

Table 21

Ratings given to observers' descriptions of rigorous general education classes

	Rural Schools									Suburban Schools										
	1r				2r					1s			2s					3s			
	Alg	Bio	Hist	Span	Alg	Bio	Eng	Hist	Span	Bio	Eng	Hist	Alg	Bio	Eng	Hist	Span	Alg	Bio	Eng	Span
Teacher-created atmosphere	2	2	2	2	2	2	2	2	3	3	1	3	1	2	3	2	3	2	3	2	2
Student Attitude	3	3	2	2	2	2	3	3	3	2	1	2	1	3	3	3	3	2	3	1	3
Teacher-Student Rapport	3	2	3	2	3	3	2	2	2	3	1	2	1	3	3	2	3	1	3	0	3
Student-Student Rapport	3	3	3	2	3	2	2	1	2	0	3	2	0	3	2	3	3	0	0	0	3
Class Demeaner	2	2	3	3	2	2	3	3	2	1	1	3	1	2	2	3	2	1	3	3	3
Class Outcome	3	3	3	0	2	3	3	2	3	3	2	3	3	3	2	3	3	2	3	0	3
Class Mean	2.7	2.5	2.7	1.8	2.3	2.3	2.5	2.2	2.5	2	1.5	2.5	1.2	2.7	2.5	2.7	2.8	1.3	2.5	1	2.8

Numbers reflect observer's impression based on three point scale. A "1" reflects a negative impression of the item, a "2" reflects a neutral impression, and a "3" reflects a positive impression. A "0" reflects no interaction by the target student or no outcome for the class.

Table 21, continued

Ratings given to observers' descriptions of rigorous general education classes

	Urban Schools															All Schools				
	1u					2u					3u									
	Alg	Bio	Eng	Hist	Span	Alg	Bio	Eng	Hist	Span	Alg	Bio	Eng	Hist	Span	Alg	Bio	Eng	Hist	Span
Teacher-created atmosphere	1	2	3	3	3	2	1	1	2	3	1	2	3	2	2	1.6	2.1	2.1	2.3	2.6
Student Attitude	1	1	3	2	3	2	1	1	2	3	3	2	3	3	3	2	2.1	2.1	2.4	2.9
Teacher-Student Rapport	2	3	2	2	1	2	3	2	3	2	2	2	3	3	3	2	2.8	1.9	2.4	2.3
Student-Student Rapport	1	2	3	3	3	3	3	2	2	1	0	3	3	2	2	1.4	2	2.1	2.3	2.3
Class Demeaner	2	2	3	2	1	2	1	1	3	3	3	3	3	2	3	1.9	2	2.3	2.7	2.4
Class Outcome	3	1	2	1	2	1	1	1	2	1	2	3	2	2	1	2.3	2.5	1.7	2.3	1.9
Class Mean	1.7	1.8	2.7	2.2	2.2	2	1.7	1.3	2.3	2.2	1.8	2.5	2.8	2.3	2.3	1.9	2.3	2	2.4	2.4

Numbers reflect observer's impression based on three point scale. A "1" reflects a negative impression of the item, a "2" reflects a neutral impression, and a "3" reflects a positive impression. A "0" reflects no interaction by the target student or no outcome for the class.

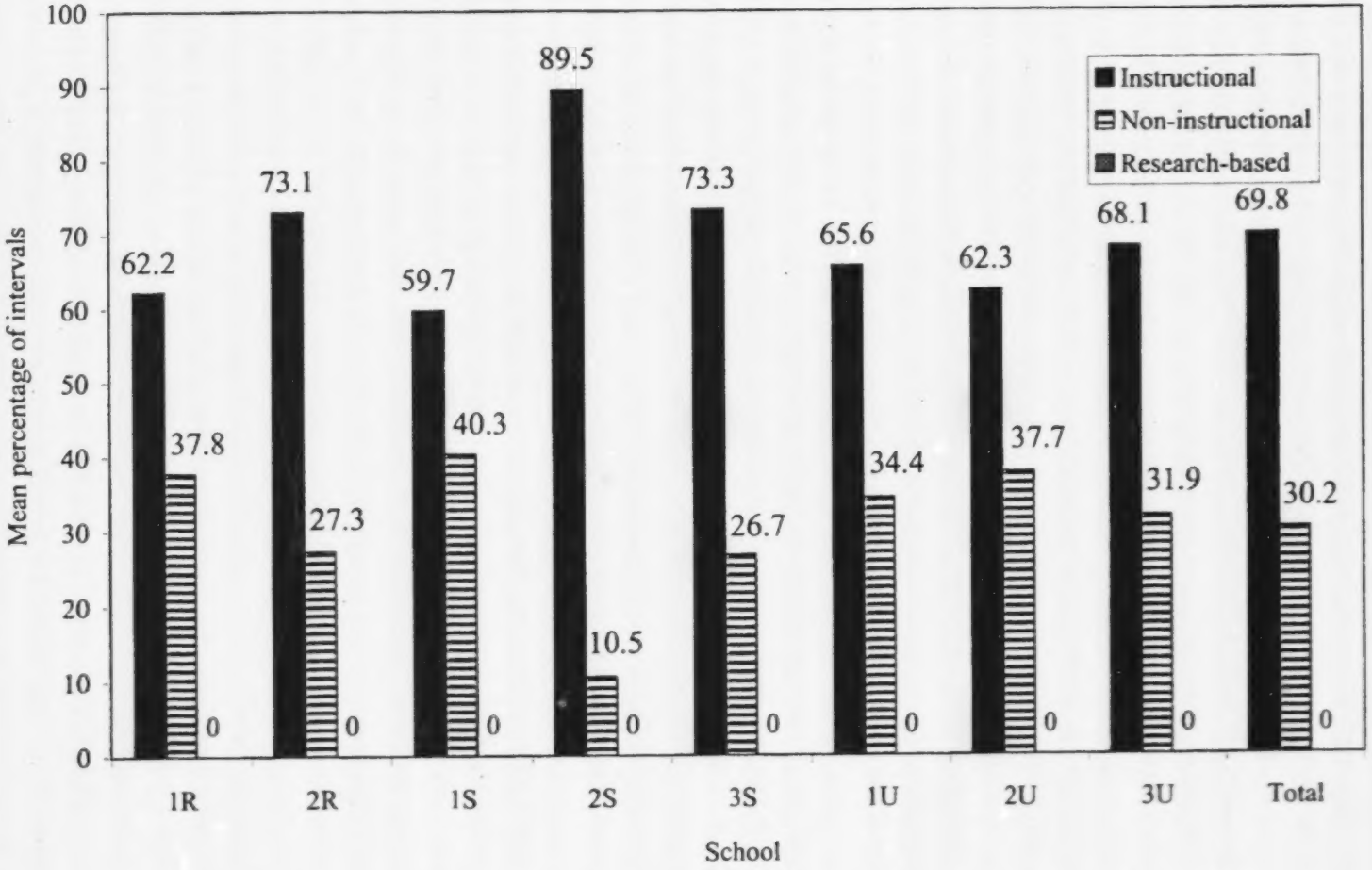


Figure 1. Mean percentage of intervals general education teachers were observed in various activities for each school.

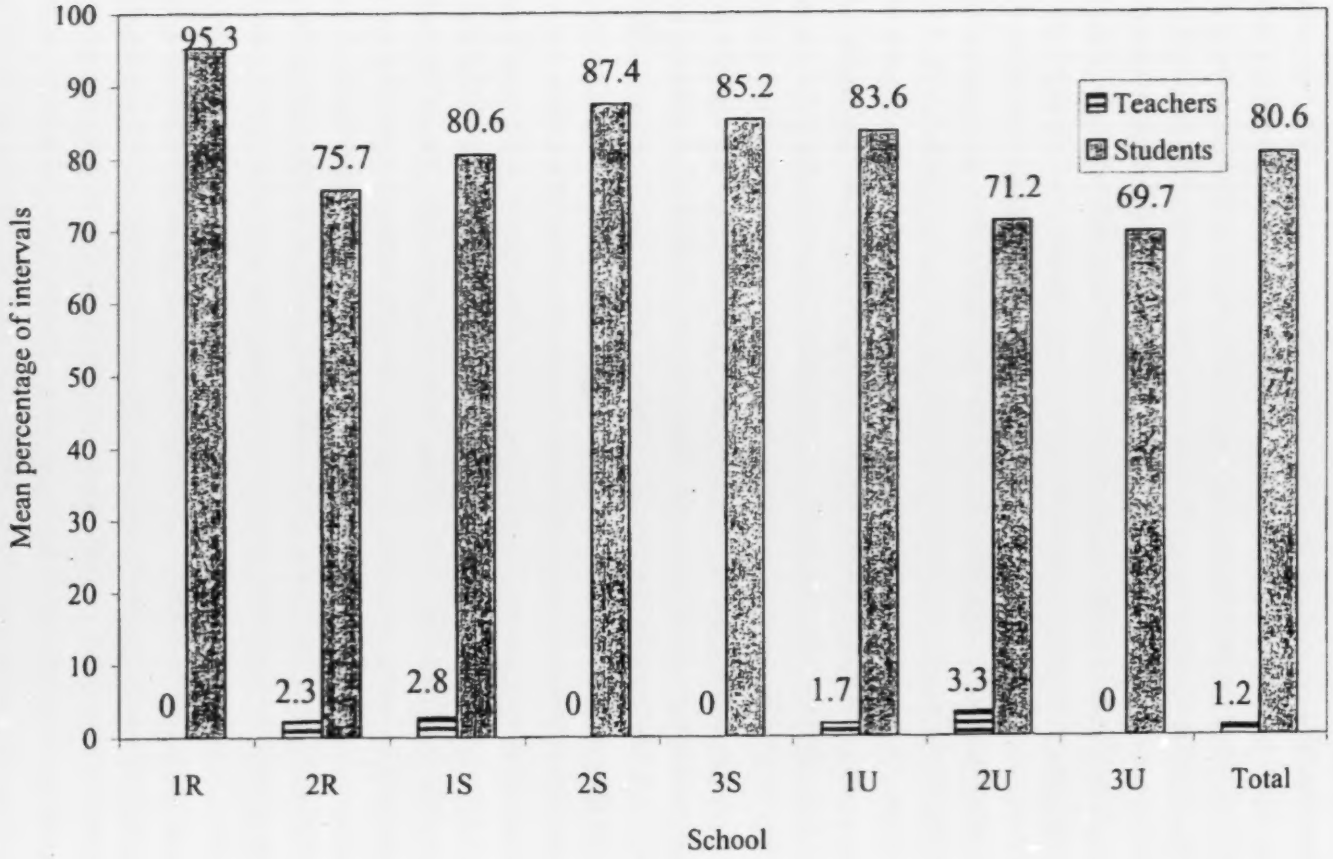


Figure 2. Mean percentage of intervals in which the general education teacher was observed interacting with other teachers and students.

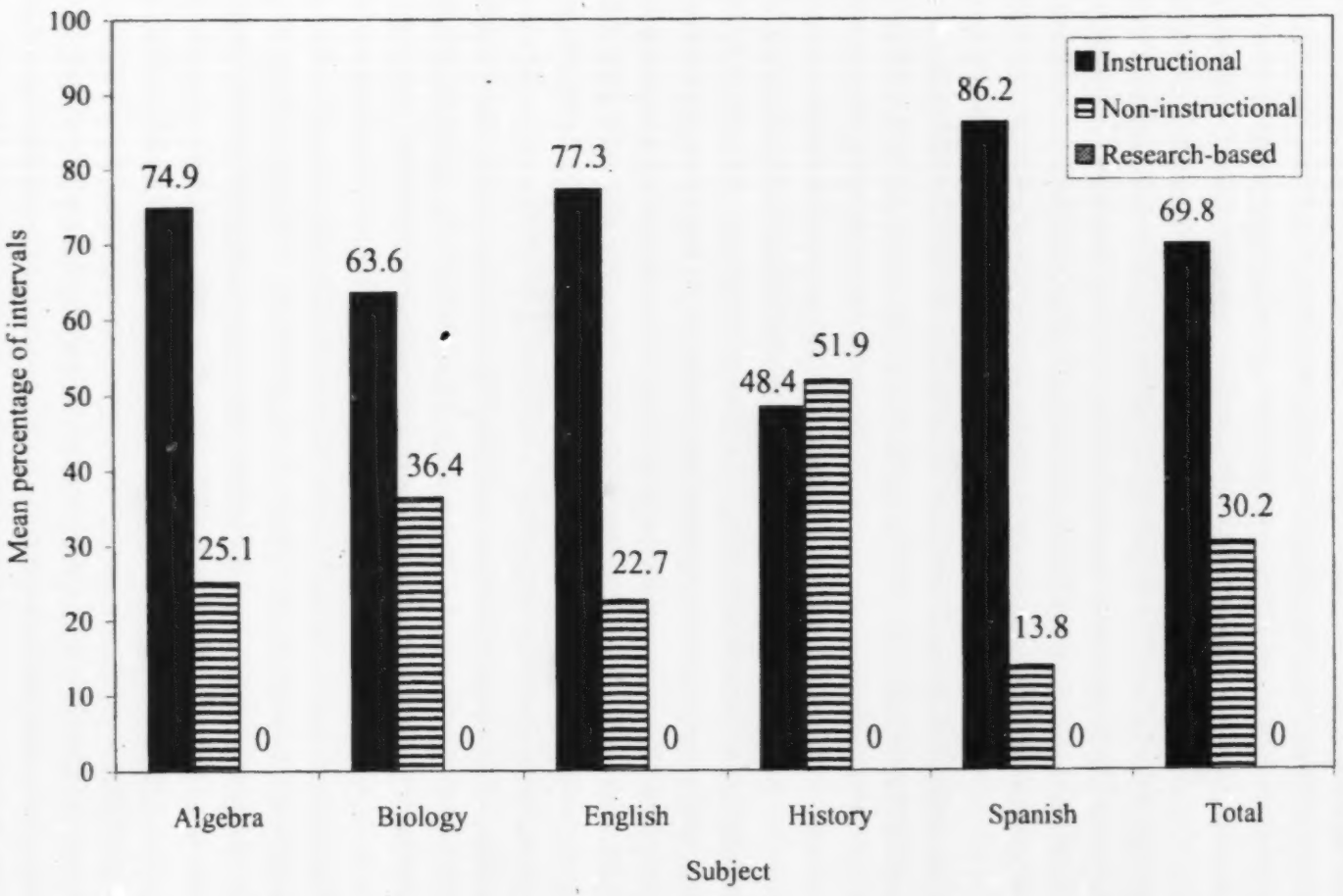


Figure 3. Mean percentage of intervals general education teachers were observed in various activities by subject.

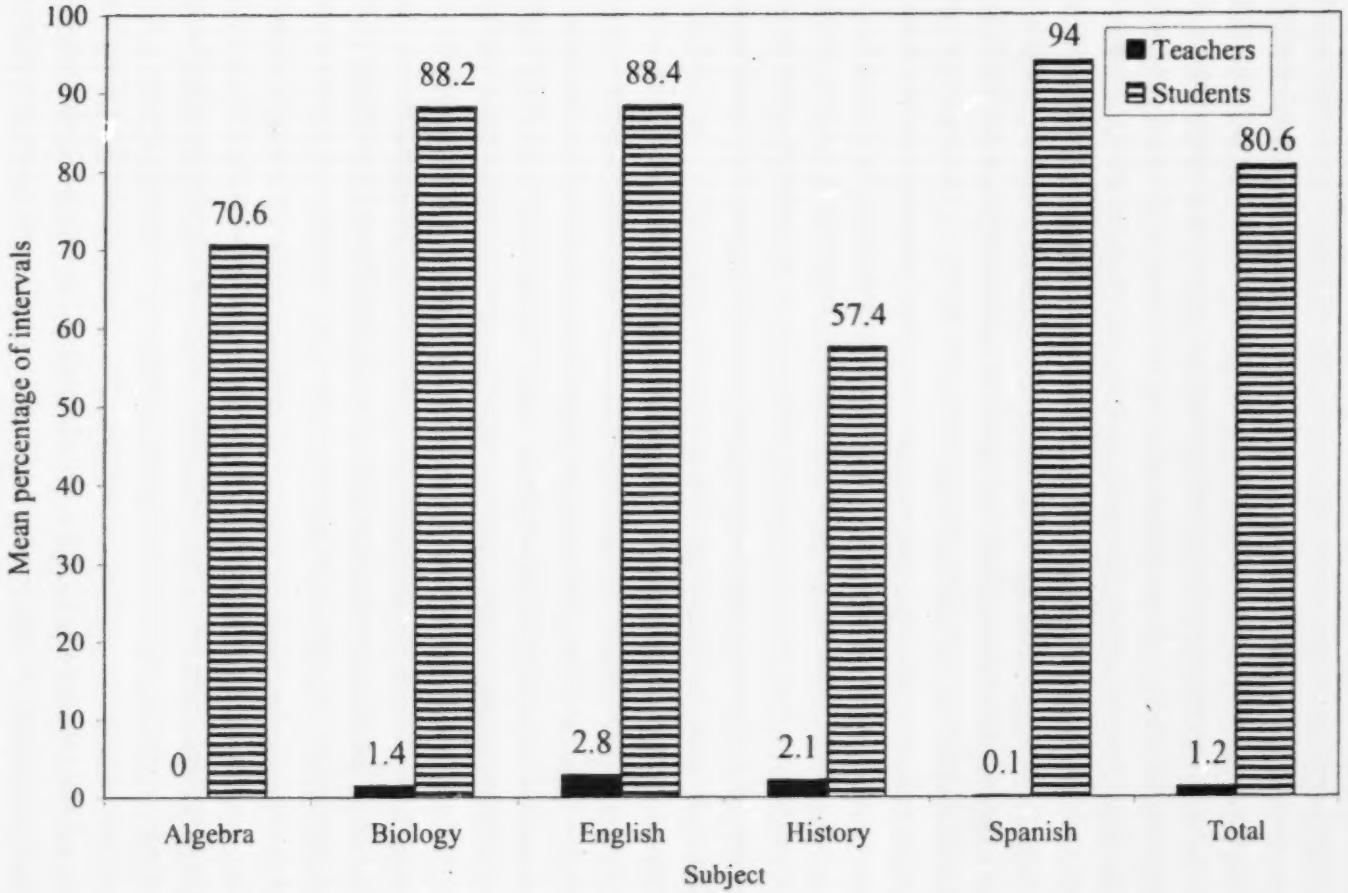


Figure 4. Mean percentage of intervals general education teachers were observed interacting with students and other teachers.

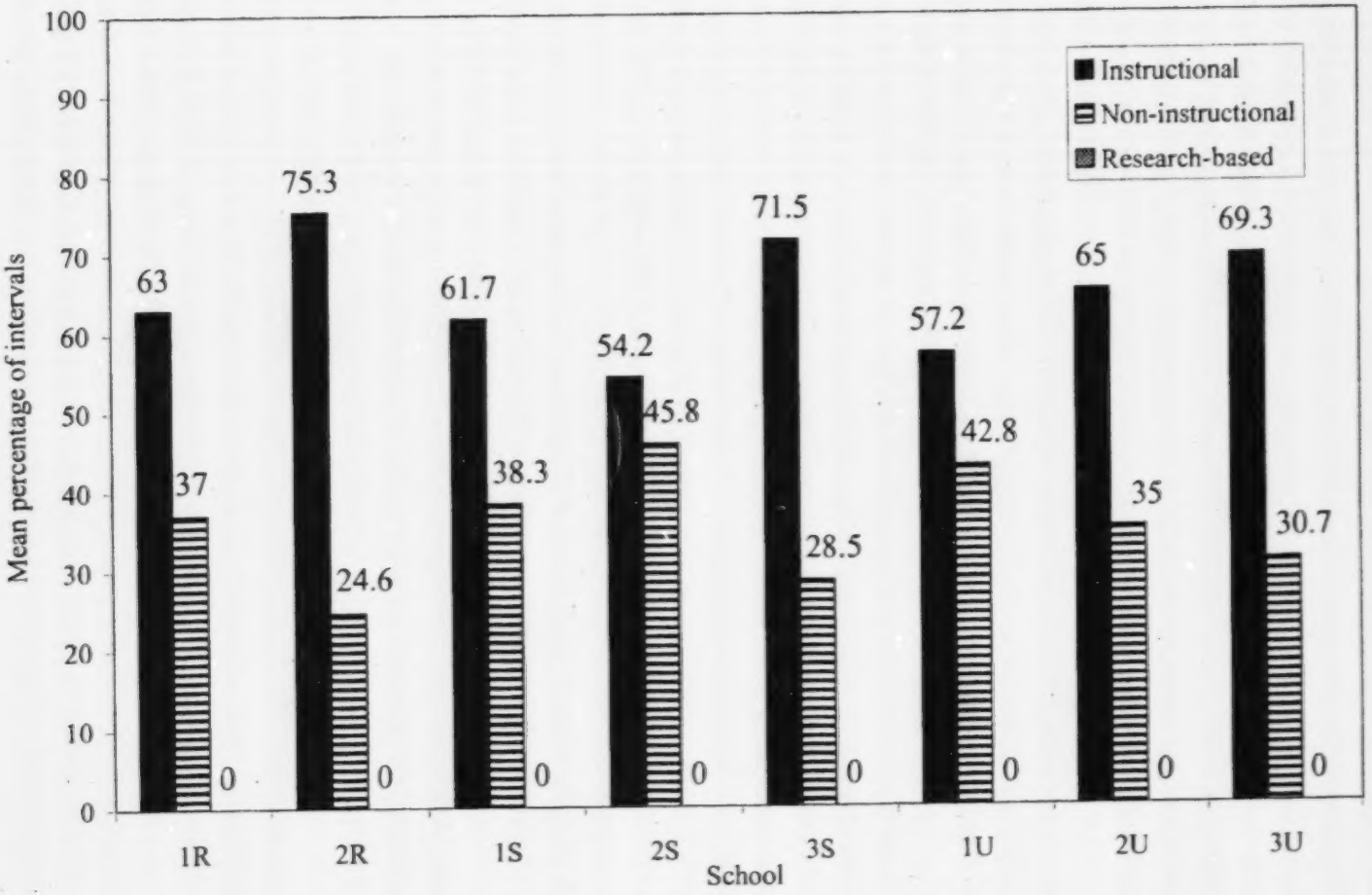


Figure 5. Mean percentage of intervals general education students were observed in various activities for each school.

Figure 6 . Mean percentage of intervals in which the students were observed interacting with teachers and other students.

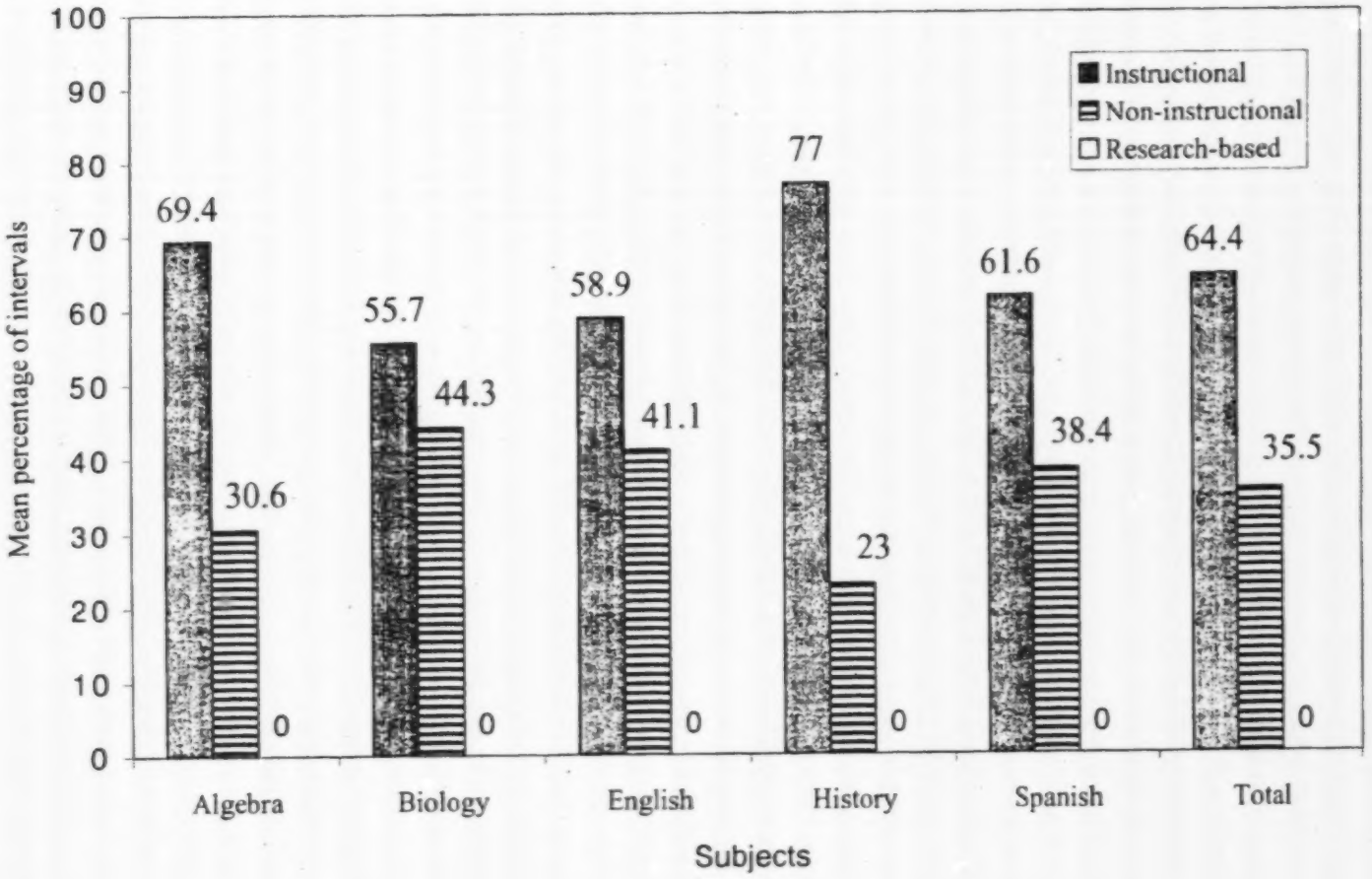


Figure 7. Mean percentage of intervals in which students were observed in various activities by subject.

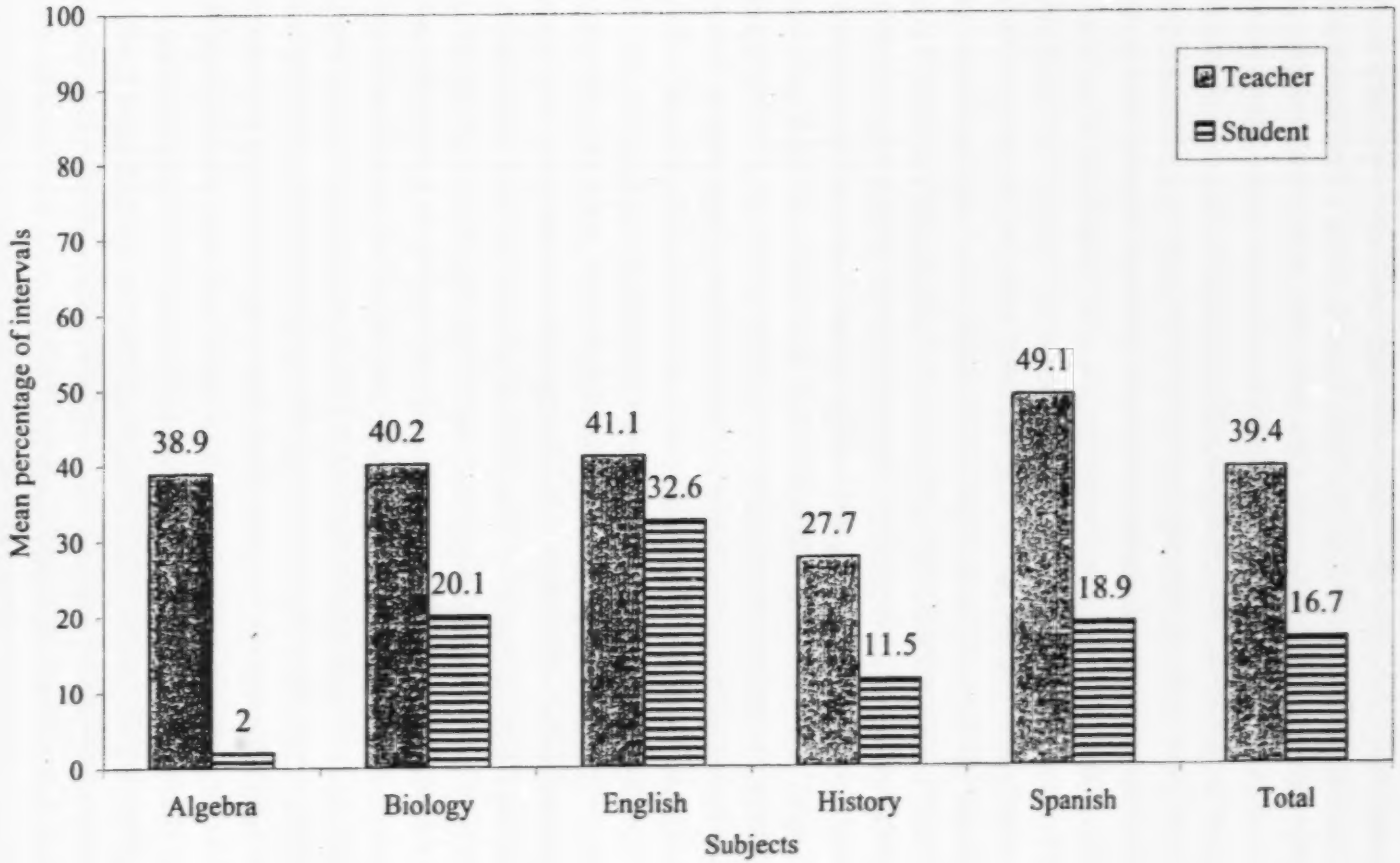
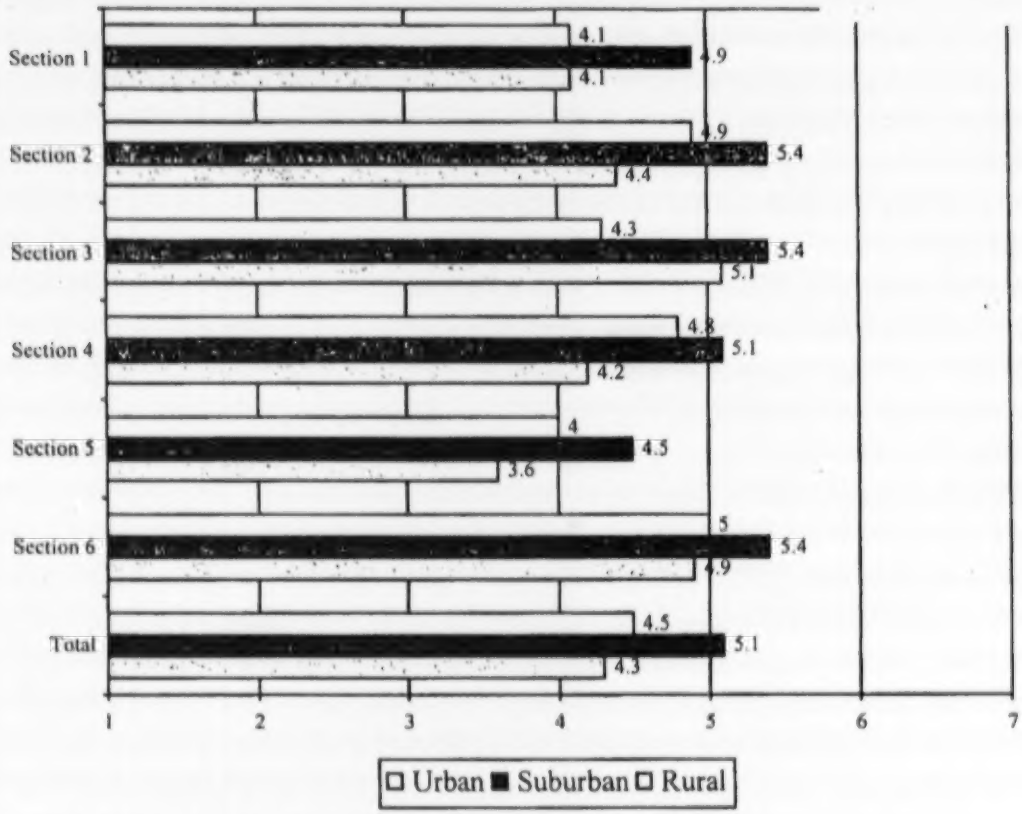


Figure 8. Mean percentage of intervals general education students were observed interacting with teachers and other students.



General Education Teacher Satisfaction Questions

Section 1: Consider how the special education teachers in this school work with you.

Section 2: Consider how the special education teachers help students with disabilities success in required general education classes.

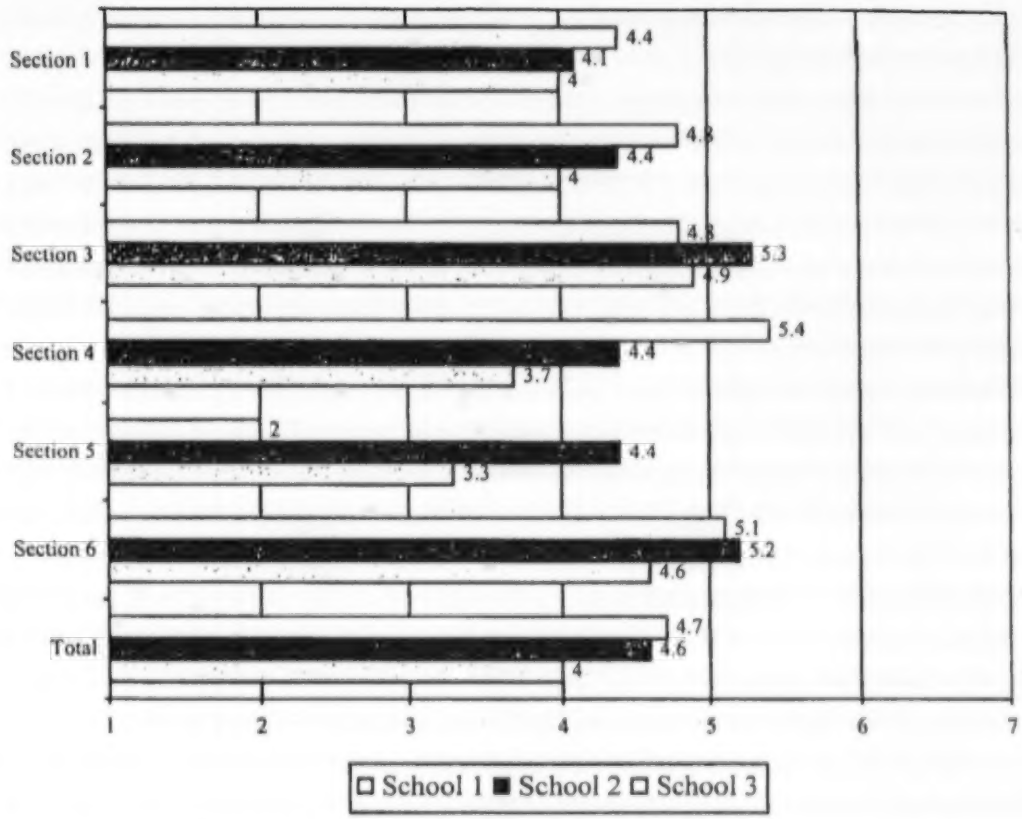
Section 3: Consider the written reports you have received and/or the personal contacts you have had with special education teachers regarding the progress of students with disabilities enrolled in your classes.

Section 4: Consider the outcomes related to students with disabilities who are enrolled in your classes for academic purposes.

Section 5: Consider the professional development experiences provided to you to assist you in helping these students succeed in required general education classes.

Section 6: Consider your own performance as a teacher with regard to ensuring the success (earned grades of C or above) of students with disabilities in general education classes.

Figure 9. Satisfaction ratings by general education teachers in each demographic region.



General Education Teacher Satisfaction Questions

Section 1: Consider how the special education teachers in this school work with you.

Section 2: Consider how the special education teachers help students with disabilities success in required general education classes.

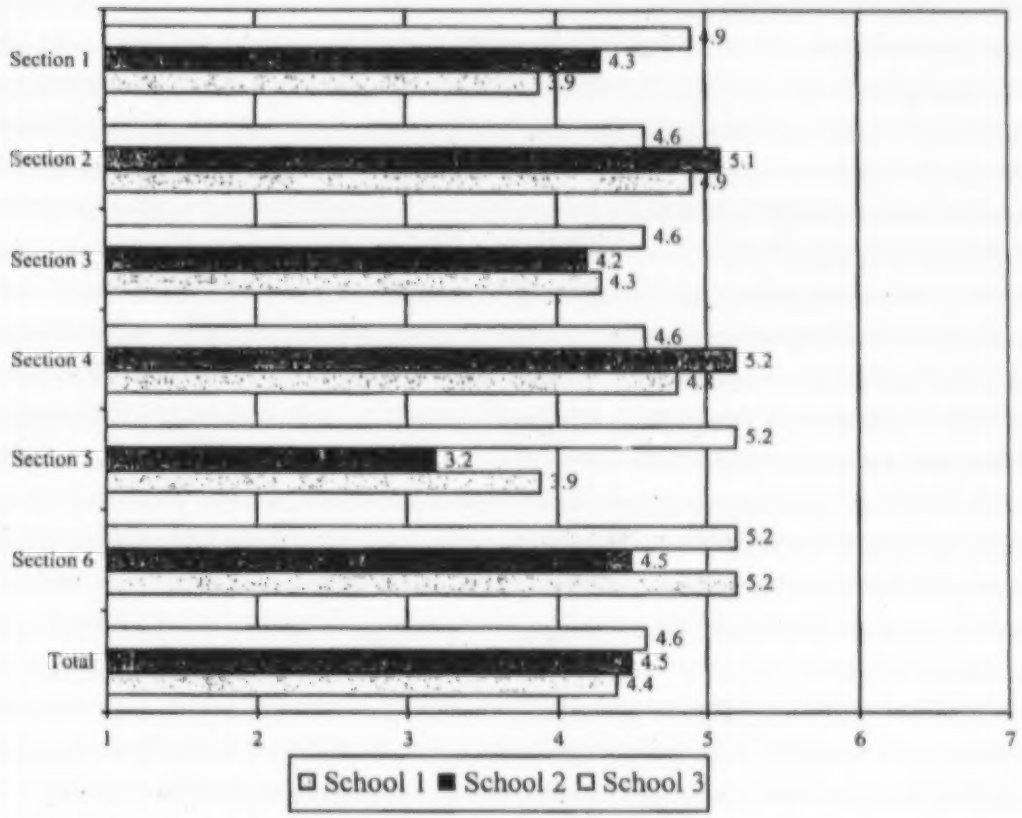
Section 3: Consider the written reports you have received and/or the personal contacts you have had with special education teachers regarding the progress of students with disabilities enrolled in your classes.

Section 4: Consider the outcomes related to students with disabilities who are enrolled in your classes for academic purposes.

Section 5: Consider the professional development experiences provided to you to assist you in helping these students succeed in required general education classes.

Section 6: Consider your own performance as a teacher with regard to ensuring the success (earned grades of C or above) of students with disabilities in general education classes.

Figure 10. Mean satisfaction ratings by general education teachers in urban schools.



General Education Teacher Satisfaction Questions

Section 1: Consider how the special education teachers in this school work with you.

Section 2: Consider how the special education teachers help students with disabilities success in required general education classes.

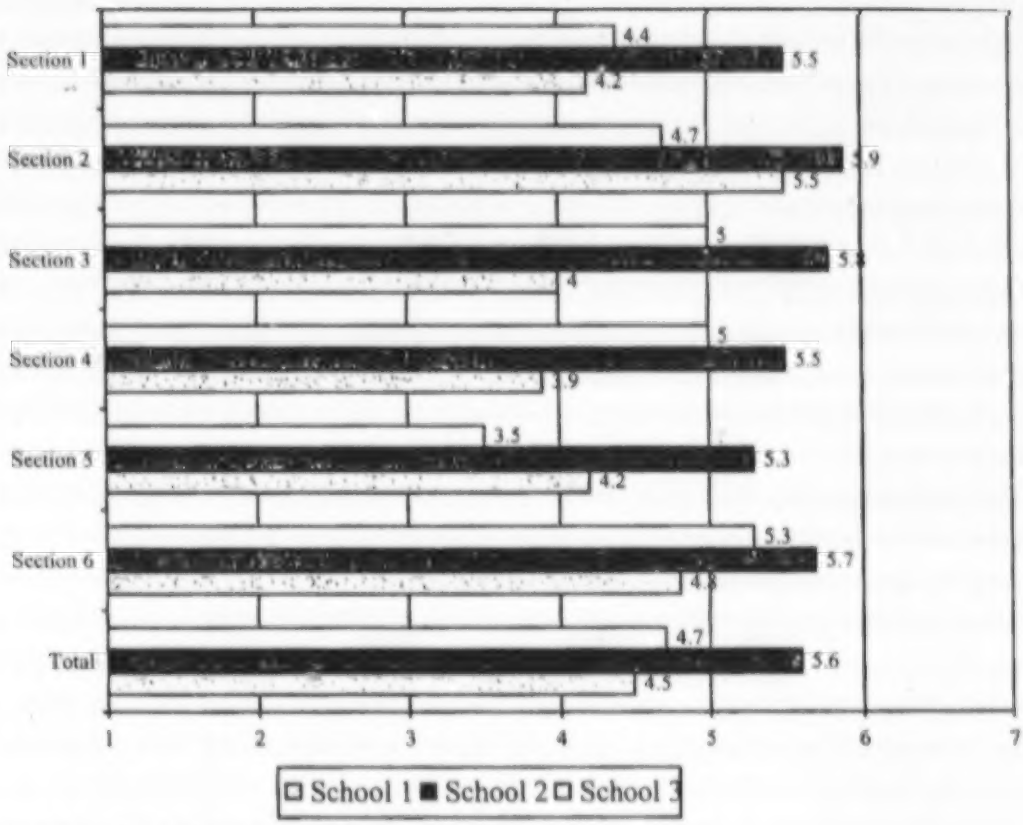
Section 3: Consider the written reports you have received and/or the personal contacts you have had with special education teachers regarding the progress of students with disabilities enrolled in your classes.

Section 4: Consider the outcomes related to students with disabilities who are enrolled in your classes for academic purposes.

Section 5: Consider the professional development experiences provided to you to assist you in helping these students succeed in required general education classes.

Section 6: Consider your own performance as a teacher with regard to ensuring the success (earned grades of C or above) of students with disabilities in general education classes.

Figure 11. Mean satisfaction ratings by general education teachers in rural schools.



General Education Teacher Satisfaction Questions

Section 1: Consider how the special education teachers in this school work with you.

Section 2: Consider how the special education teachers help students with disabilities success in required general education classes.

Section 3: Consider the written reports you have received and/or the personal contacts you have had with special education teachers regarding the progress of students with disabilities enrolled in your classes.

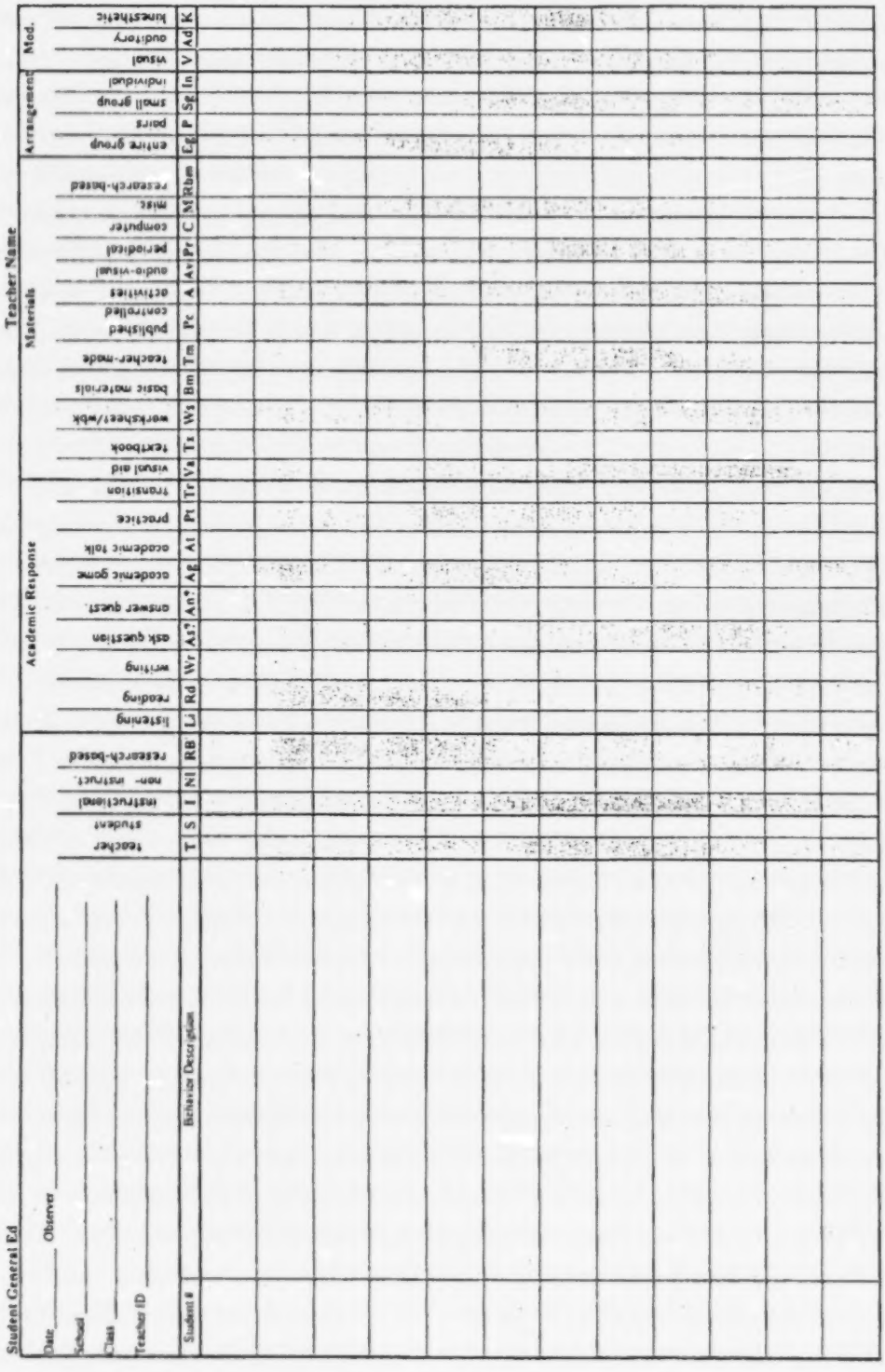
Section 4: Consider the outcomes related to students with disabilities who are enrolled in your classes for academic purposes.

Section 5: Consider the professional development experiences provided to you to assist you in helping these students succeed in required general education classes.

Section 6: Consider your own performance as a teacher with regard to ensuring the success (earned grades of C or above) of students with disabilities in general education classes.

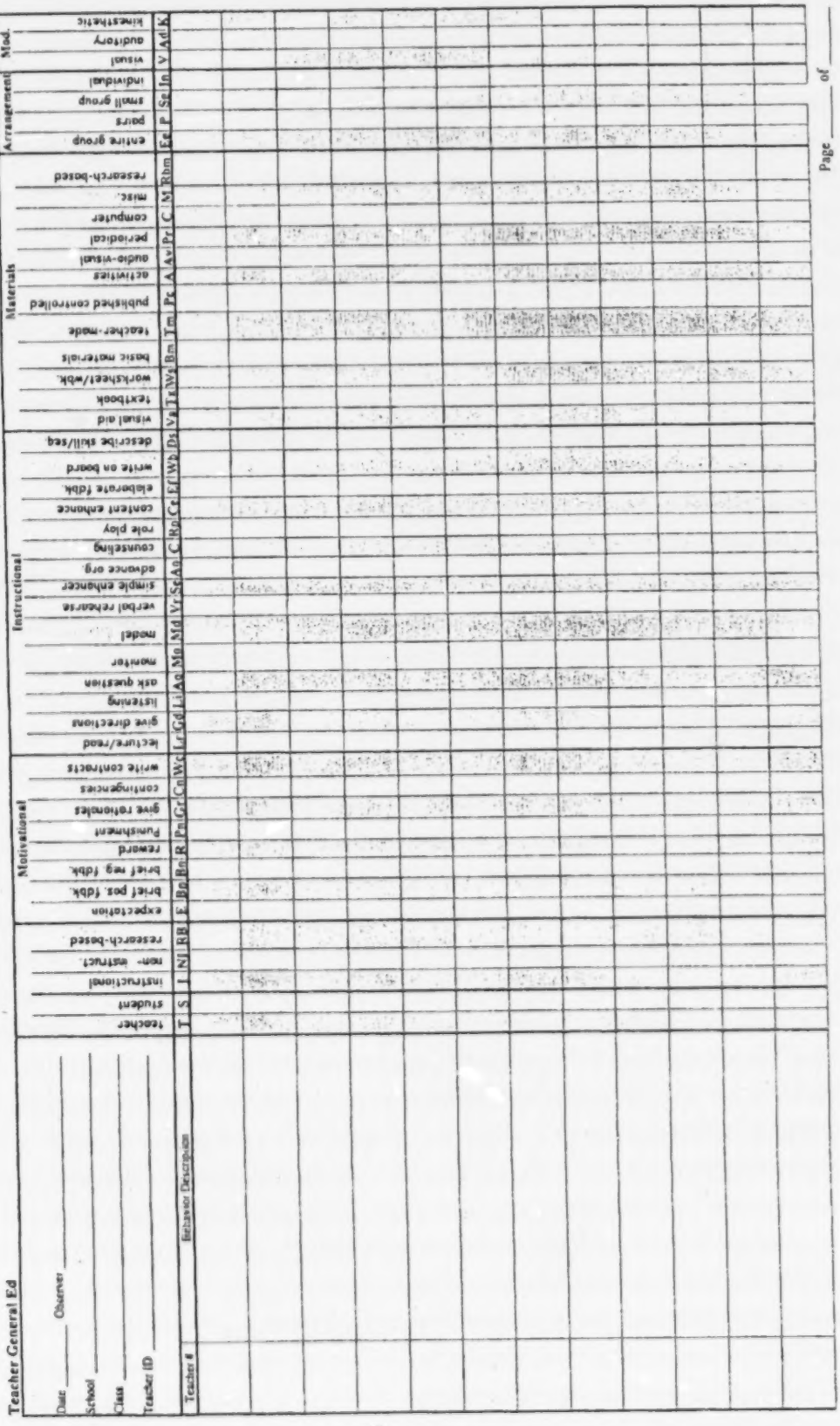
Figure 12. Mean satisfaction ratings by general education teachers in suburban schools.

Appendix A
Student Observation Sheet



Note: These forms have been reduced from their original size

Appendix B
Teacher Observation Sheet



Note: These forms have been reduced from their original size

U.S. Department of Education
Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)

NOTICE

Reproduction Basis

	This document is covered by a signed "Reproduction Release (Blanket)" form (on file within the ERIC system), encompassing all or classes of documents from its source organization and, therefore, does not require a "Specific Document" Release form.
X	This document is Federally-funded, or carries its own permission to reproduce, or is otherwise in the public domain and, therefore, may be reproduced by ERIC without a signed Reproduction Release form (either "Specific Document" or "Blanket").